

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: SANG MIN LEE

Serial No.: 09/940,210

Group Art Unit: 2674

Title: COMPACT KEYBOARD FOR HANDHELD COMPUTER

Examiner: DUC Q DINH

**AMENDED APPELLANT'S BRIEF**

This brief is in furtherance of the Notice of Appeal filed in this case on November 30, 2005. This Brief is being filed in response to an office communication dated 6/30/2005. The brief is transmitted in triplicate as required under 37 C.F.R. §1.192(a)). THIS BRIEF WAS AMENDED IN RESPONSE TO OFFICE COMMUNICATION DATED 11/08/2007. I AM REQUESTED 1 MONTH EXTENSION. THE BOARD REQUESTED A TWO MONTH EXTENSION FEE TO THE PRIOR APPEAL BRIEF.

---

**CERTIFICATION UNDER 37 C.F.R. §§ 1.8(a) and 1.10**

I hereby certify that, on the date shown below, this correspondence is being: Deposited with the United States Postal Service in an envelop addressed to Mail Stop Appeal Brief, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 as express Mail Post Office to Addressee Mailing Label NO. \_\_\_\_eb 738759214us

Date: \_\_\_\_\_

1/8/07

Signature \_\_\_\_\_

*[Handwritten Signature]*

## **I. REAL PARTY INTEREST**

The real party in interest in this appeal is the party named in the caption of this brief, **SANG MIN LEE**.

## **II. RELATED APPEALS AND INTERFERENCES**

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences. This brief is an amended to the prior filed brief.

## **III. STATUS OF CLAIMS**

As of the final office action received on 6/30/2005, claims 1-23 were rejected by the examiner.

## **IV. STATUS OF AMENDMENTS**

The applicant received an advisory action (Exhibit 2) on 5/19/2006 wherein the examiner did not enter the specification amendments and my amendment to claim 13 filed on 3/24/2005 in response to examiners second non-final office action (Exhibit 4) received on 9/2/2004. On 6/30/2006, Applicant received a final office action in which the Examiner placed claim 13 into the prosecution history. Thus, claim 13 is part of this appeal process and is provided as part of the claims in the appendix. Claims in the appendix are the same as the claims in Exhibit 5 that was filed by Applicant in response to the second non-final office action (Exhibit 4). Thus, the claims in Appendix A is part of the prosecution history and part of the appeal.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Referring to FIG 1 -3A, page 4 lines 29-37, and page 5 lines 2-29, a description of

independent claim 1 is provided. Because independent claim 19 is a broader claim than claim 1, it is also described in the above listed pages. Independent Claim 1 and 19 discloses a handheld computerized device with an attached compact keyboard. In this embodiment of the present invention, the device consists of a keyboard portion and an electronic portion. The keyboard portion and the electronic housing both have a configuration defined by a top edge, bottom edge, top surface, bottom surface, and a pair of side edges. In this embodiment of the present invention, the top edge of the keyboard portion is hingedly connected to the top edge of the electronic housing. A keypad overlay the top surface of the keyboard portion and a display means overlays the top surface of the electronic housing. A microprocessor is situated inside the electronic housing and is electrically connected to keyboard the portion. The hinge connection between the keyboard portion and the electronic housing allows the keyboard portion to pivot from a closed position into an operable position. When in a closed position the keypad and display means are enclosed in a cavity formed by the closure of the keyboard portion against the electronic housing. To pivot into an operable position, the keyboard portion is pivoted 360 degrees around the longitudinal axis of the electronic housing such that the bottom surface of the keyboard portion becomes parallel to the bottom surface of the electronic housing. Claim 1 is narrow because it claims specifically the parabolic shape of the keyboard as shown in Figure 2 and Figure 3 and described page 5 lines 2 - 15.

Claim 19 is broader than claim 1 because it only claims hand gripping means as shown in Figure 4 and 4A in conjunction with the specification in pages 7 lines 23-29 and page 8 lines 1-5. Claim 20 is dependent on claim 19 and claims the parabolic shape of the keyboard as shown in Figure 2. Claim 21 is the display means as shown in Figure 4, as described on page 6 lines 6-13. Claim 24 is dependent on claim 19 and claims the limitation of the handwriting means as shown in Figure 4 and described in the specifications on page 7 lines 4-6.

Referring to FIG. 6, and page 8 lines 22-29, a description of independent claim 7 is provided. Independent Claim 7 discloses another embodiment of a handheld computerized device with an attached compact keyboard. In this embodiment of the present invention, the bottom surface of the keyboard portion is permanently affixed to

the bottom surface of the electronic housing. In this embodiment the handheld device is fixed in its operable position. A keypad overlay the top surface of the keyboard portion and a display means overlays the top surface of the electronic housing.

Referring to FIG. 7-7C, and page 9 lines 9-29, and page 10 lines 2-11, a description of claim 13 is provided. Claim 13 discloses another embodiment of a handheld computerized device with an attached compact keyboard. In this embodiment of the present invention, the handheld device consists of a sliding bracket having a pair of guide members integrally coupled to the side edges of the electronic housing. The side edges of the keyboard portion are adapted to slide into the guide members. In this embodiment the handheld device is placed in an operable by sliding the keyboard portion with the bottom surface of the keyboard portion parallel to the bottom surface of the electronic housing.

#### **V. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Applicant is requesting a review of the 103 rejections of claims 1, 2, 19, 20, 24, 7, and 8. Additionally, the 112 rejection of claim 13 needs to be reviewed in this appeal.

#### **VI. ARGUMENT**

##### **RESPONSE TO EXAMINER'S ADVISORY ACTION**

The final amendment (See Exhibit 3) filed to the specifications on 11/30/2005 addressed typographical errors wherein the applicant corrected numerical designations only. Thus, this is not new matter. Claim 13 should not have required additional research because this case has been in prosecution for over 3 years and have had two examiners with different outlooks. Further more, the amendment to claim 13 was filed on 12/29/2004 and revised on 3/24/2005 during prosecution in response to examiner's non-final action. The examiner rejected claim 13 under 112 and this is addressed in the arguments below. In his final rejection (See Exhibit 3) dated 6/30/2005, the examiner did

not state that claim 13 had not been entered into the prosecution of the patent. Claim 13 was on filed prior to the close of prosecution. Several searches have been done on this patent. Thus, the claims on appeal in the appendix are those that were filed as of the final rejection.

### **PROSECUTION HISTORY**

Applicant received a final office action (Exhibit 3) on 6/30/2005. This office action was not in line with examiner and applicant prior telephone conversation. Additionally, this office action raised issues that were never discussed in the telephone conversation. Claim 13 was rejected under 35 USC 112. I reviewed the specifications and drawings and determined there were typographical errors in the specifications. I provided that explanation to the examiner in a telephone conversation. Applicant amended the specifications because there was a mislabeling on the drawings of 746, 742, 741, 745 and 7A. I felt that arrow A in drawing 7A needed to be clarified. There were typographical errors in specifications which were changed accordingly Page 9 lines 9-29 and page 10 lines 1-8. The claims presented with the response to the final office action are presented below. The claims were not amended. Only the specification was amended to correct 112 rejection. Applicant reasserted the amendments from the prior office action.

Applicant received a first non-final office action (Exhibit 6) in 5/21/2003. Applicant amended claims in line with a telephone communication with Examiner. This is provided in Exhibit 7. Claim 2 was allowed. Claim 1 was amended with part

of the limitation of claim 2 to place the application in a condition for allowance.

Claims 4, 10, and 16 were amended to correct the spelling of LCD. Claims 19-24 was added to reclaim subject matter in claim 1 for a continuation. As result of the claims status are as follows

A year later Applicant received a second non-final office action (Exhibit 4) in 9/2/2004. Applicant amended claims in line a telephone communication with Examiner. Examiner and Applicant agreed that claim 1 was distinguished from the prior art Blandenberg. However, we discussed how claim 7 and 13 had to be amended to further distinguish the application from the Brandenburg patent provided in Exhibit 1.

**ISSUE 1: 103 REJECTION OF CLAIM INDEPENDENT CLAIM 1, 2, 7, 8, 19, 20, 21, 24.**

In my final office action response, Applicant reiterated original response per the telephone interview on December 27, 2004 as follows: In his final office action response, Examiner never discussed FIG. 6C of Brandenburg. Per our telephone conversation after the first non-final office action received on 9/2/2004, Applicant pointed out the significance of FIG. 6C.

Regarding claim 1, Applicant and Examiner agreed that Applicant's claimed invention could be distinguished from Blandenberg. Applicant claims:

*a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base; an electronic housing having a configuration defined by a top surface, a bottom*

*surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the bottom surface of the electronic housing is parallel to the bottom surface of the support base;*

*Blandenberg states:*

*As device 801 transitions to the open state, display portion 803 hingedly pivots relative to body portion 807 as indicated by arrow 809 in FIG. 6B. In the open state, display screen 815 is adjacent to and visible above thumbboard 805. Fig. 6a shows the closed state and Fig. 6B is still in the closed state to show the transition to FIG. 6C.*

*As shown in FIG. 6C of Blandenberg, the invention in the prior art keyboard is adjacent to the keyboard in an open state. Blandenberg illustrates in FIG. 6A and 6B that bottom surface of the keyboard and display portion are parallel in a closed state.*

*Applicant claims the electronic housing having the display and the keyboard portion are parallel in an open state. Thus, the Applicant's invention is distinguished from the prior art. As shown in FIG.'S, 6A, 6B, and 6C, the lower edge of the display is hingedly connected to the top edge of the keyboard housing. As shown in FIG. 1 in the specification, the two top edges are hingedly connected as claimed.*

Regarding claim 7, Examiner cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. A factual

inquiry whether to combine references must be thorough and searching. A showing of suggestion, teaching or motivation to combine the prior art references is an essential component of an obvious holding. The prior art must suggest a desirability to combine prior art references. (See 277 F3d 1338, 61 USPQ2d 1430 (Fed. Cir 2002)).

*Here, examiner noted that Brandenburg does not teach the limitation of the bottom surface being permanently affixed of the keyboard in an operable position. The examiner tried to use Brandenburg to fit the claim limitations of Applicant's invention. However, as noted above Brandenburg does not teach or suggest the configuration as claimed by the applicant. Brandenburg teaches a pivoting of a display into a normal configuration with the display adjacent to the keyboard in an open state. The device in Brandenburg is not hingedly connected as claimed by the Applicant. The hingedly connection between the two top edges facilitates the transitioning of the applicant's device the open state.*

*Ni illustrates a keyboard affixed to the backside of a notebook computer or gamebox. Ni is new reference traversed by the examiner. Additionally, the Keyboard in Ni is not Parabolic as claimed by the Applicant.*

*Ni nor Brandenburg discloses hand grips for supporting the hands while typing on the keyboard when the device is in the open state. In Brandenburg in FIG. 6C, a standard keyboard is shown. Thus hand support means on the side is not required. Label 827 in FIG. 6C designates joysticks. By plain definition joysticks are not used for hand support means. Thus, there is no motivation to combine Ni and Brandenburg. Additionally, it also follows that there is no motivation to combine Makala as well.*



*Regarding claims 19-24, the above arguments would follow. As explained above claim 19-24 was added to recapture the claim limitation of the original filed application after the first office action. Applicant amended claim 1 to put the application in a condition of allowance.*

## **ISSUE 2: 112 REJECTION OF CLAIM 13**

Claim 13 was amended in the non-final office action to claim an alternative embodiment of claim 1, wherein the invention is slid into an operable position with the bottom surface of electronic housing (720) and keyboard portion (710) in a parallel position. (See Page10 lines 3-5 and FIG. 7C).

The specifications do more than just mention operable versus closed state. Page 9 lines 9-29 and page 10 lines 1-8 disclose the full process of how the embodiment of claim 13 functions. There are some typographical errors between the FIG.'S 7A-7C and the specifications. The disclosure can be amended to matter that is inherently disclosed by the original application. *(See In re Smyte, 480 F.2d 1376, 178 USPQ 279 (C.C.P.A))* As a result, applicant has amended the specifications to be in line with the drawings which are part of the original disclosure. Examiner alleges that the specifications fail to convey to one skilled in the art. Applicant has amended FIG 7A and 7B with labels in line with FIG 7 and FIG. 7C. Applicant provided original drawing of FIG. 7C with response to Office Action for clarification. The specification was amended as follows (Please note that examiner and applicant discussed these changes in a telephone conversation; because these amendments are typographical they could have been taken

care of before final office action response. This was never mentioned to me prior to final office action):

- *Labels (746,747) was replaced with 736, 737 to show rib designations. Numerals 746 and 747 were designated as ribs earlier in the application. This is an obvious error that can be amended.*
- *Labels 741 and 742 were changed because their designations are reversed in the drawings. This is an obvious error that can be amended.*
- *More designations were added to FIG. 7A and 7B for clarification and to bring them in line with FIG. 7 and 7C. These designations are taken directly from the drawings 7 and 7C which were disclosed in the original disclosure.*
- *Numeral 765 was changed to 745. Numeral 745 is depicted as bottom surface of the electronic housing in the specifications and drawings. This is an obvious error for amendment.*
- *A description of 7A and 7B was added for clarification for examiner. 7B was changed to 7A. 7A is the closed state. This is an obvious error that can be amended in view of the drawings.*
- *As shown in FIG. 7A, in the closed state the keypad (125) faces the bottom surface of the electronic housing which is also stated in the specifications on Page 10, "After the user is finished using device (700), the keyboard portion (710) is slid into guide members (735, 737) with the keypad (725) facing the bottom surface ~~(765)~~ (745) of electronic housing (720)" As shown in the operable state in FIG. 7B, keypad 125 does not*

*face the bottom surface of the electronic housing. However, Applicant can change wording to state a parallel configuration which is also depicted in FIG. 7A if required by the examiner.*

Drawings are considered part of the specifications. (*See Was-Cath, Inc v. Mahurkar, 935 F2d 1555, 19 USPQ2d 1111, 1118 (Fed. Cir. 1991)*). Fig.'s 7A-7C illustrates the configuration of operable and closed state of this embodiment of the present invention. The language of claim 13 comes directly from the specifications in conjunction with the drawings. It is not clear what examiner means by the specification do not reasonably convey to one skilled in the art. Clarification is required because the drawings are clear. The description does not require literal support for the claimed invention. The disclosure should convey the concept that is claimed. (*See Ex Parte Parks 30 USPQ2d 1234, 1246-27 (B.P.A.I 1993)*)

*Here, the drawings do provide the concept of the claimed invention. The changes to the specifications to bring them in line with drawings are appropriate changes.*

## **VII. APPENDIX A OF CLAIMS INVOLVED IN THIS APPEAL**

The claims on appeal are the claims that were filed by applicant on 3/24/2005 (Exhibit 5) in response to the second non-final Office action dated 9/2/2004 (Exhibit 4) and addressed in the final office action provided in Exhibit 3 and dated 6/30/2005. These claims are provided below including claim 13 as amended on 3/24/2005 in response to the second non-final office action dated 9/2/2004. The claims below are the claims addressed during prosecution by the examiner. There was no amendment to claim 13 prior to close of prosecution.

1. (Previously Presented) A handheld computerized device comprising:
  - a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;
  - an electronic housing having a configuration defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the bottom surface of the electronic housing is parallel to the bottom surface of the support base;
  - a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;
  - a means for displaying data overlaying the top surface of the electronic housing;
  - and
  - a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby data entered at the keypad is transmitted to the processor and displayed by the display means;
  - and

- a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;  
the first and the second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;
2. (Previously Presented) The device recited in Claim 1, wherein the keypad further comprises:  
the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and  
the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand.
3. (original) The device recited in Claim 1, wherein the display means further comprises:  
a display area defined by a top edge, bottom edge, and a pair of side edges;  
a front panel surrounding the display area and being defined by a top strip, a bottom strip, and a pair of side strips; and  
each edge of the display area lying adjacent to and being securely attached to each corresponding strip of the display area.
4. (Previously Presented) The device recited in Claim 3 wherein the display area is a Liquid Crystal Display (LCD).
5. (original) The device recited in Claim 3, wherein the bottom strip and each side strip of the front panel further comprises:  
a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof; and  
a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.
6. (original) The device recited in Claim 1, further comprising:  
a pressure sensitive writing means for allowing data to be inputted via handwriting; and  
the pressure sensitive writing means overlapping the bottom edge of the display

area.

7. (currently amended) A handheld computerized device comprising:
  - a keyboard portion having a support base and a keypad, the support base including a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;
  - an electronic housing having a configuration with a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the bottom surface of the electronic housing being securely attached to the bottom surface of the keyboard portion in an operable position;
  - a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;
  - a means for displaying data overlaying the top surface of the electronic housing;
  - and
  - a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby the data entered at the keypad is transmitted to the processor and displayed by the display means.
8. (original) The device recited in Claim 7, wherein the keypad further comprises:
  - a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;
  - the first and second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;
  - the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and
  - the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand.
9. (original) The device recited in Claim 7, wherein the display means further comprises:
  - a display area defined by a top edge, bottom edge, and a pair of side edges;
  - a front panel surrounding the display area and being defined by a top strip, a

bottom strip, and a pair of side strips; and

each edge of the display area lying adjacent to and being securely attached to each corresponding strip of the display area.

10. (Previously Presented) The device recited in Claim 9 wherein the display area is a Liquid Crystal Display (LCD).

11. (original) The device recited in Claim 10, wherein the bottom strip and each side strip of the front panel further comprises:

a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof; and

a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.

12. (original) The device recited in Claim 7, further comprising:

a pressure sensitive writing means for allowing data to be inputted via handwriting; and

the pressure sensitive writing means overlapping the bottom edge of the display area.

13. (currently amended) A handheld computerized device comprising:

a sliding bracket having a pair of guide members;

a keyboard portion having a support base and a keypad, the support base including a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the pair of side edges being adapted to slide into the pair of guide members in an operable state or in a closed state, the keypad overlaying the top surface of the support base;

an electronic housing having a configuration with a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the pair of side edges being integrally coupled to the pair of guide members;

a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;

in the operable state, the side edges of the support base are adapted to slide into

the guide members such that the bottom surface of the support base and the bottom surface of the electronic housing are parallel to each other;  
in the closed state, the side edges of the support base are adapted to slide into the guide members such that the keypad faces the top surface of the electronic housing;  
a means for displaying data overlaying the top surface of the electronic housing;  
and  
a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby the data entered at the keypad is transmitted to the processor and displayed by the display means.

14. (original) The device recited in Claim 13, wherein the keypad further comprises:
  - a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;
  - the first and second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;
  - the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and
  - the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand;
15. (original) The device recited in Claim 13, wherein the display means further comprises:
  - a display area defined by a top edge, bottom edge, and a pair of side edges;
  - a front panel surrounding the display area and being defined by a top strip, a bottom strip, and a pair of side strips; and
  - each edge of the display area lying adjacent to and being securely attached to each corresponding strip of the display area.
16. (Previously Presented) The device recited in Claim 15 wherein the display area is a Liquid Crystal Display (LCD).
17. (original) The device recited in Claim 15, wherein the bottom strip and each side strip



of the front panel further comprises:

a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof; and

a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.

18.(original) The device recited in Claim 13, further comprising:

a pressure sensitive writing means for allowing data to be inputted via handwriting; and

the pressure sensitive writing means overlapping the bottom edge of the display area.

19. (Previously Presented) A handheld computerized device comprising:

a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;

an electronic housing having a configuration defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the bottom surface of the electronic housing is parallel to the bottom surface of the support base;

a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad.

20. (Previously Presented): The device recited in Claim 19, wherein the keypad further comprises:

a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas,  
the first and the second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;

the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and

the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand.

21. (Previously Presented) The device recited in Claim 19 wherein the display means further comprises:

a display area defined by a top edge, bottom edge, and a pair of side edges;

a front panel surrounding the display area and being defined by a top strip, a bottom strip, securely attached to each corresponding strip of the display area.

22. (Previously Presented): The device recited in Claim 21 wherein the display area is a Liquid Crystal Display (LCD).

23. (Previously Presented): The device recited in Claim 21 wherein the bottom strip and each side strip of the front panel further comprises:

a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof;

a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.

24. (Previously Presented) The device recited in Claim 19 further comprising :

a pressure sensitive writing means for allowing data to be inputted via handwriting; and

the pressure sensitive writing means overlapping the bottom edge of the display area.

## **VIII. EVIDENCE APPENDIX B**

The below documents are not affidavits. They are part of the record and are provided for convenience of the board to understand the issues at hand. The whole record needs to be evaluated. The applicant is providing the documents for review. There are no related appeals to this case.

Exhibit 1 – Brandenburg Patent

Exhibit 2- Advisory Action

Exhibit 3 – Final Office Action with the Applicant filed claims

Exhibit 4- Second Non-final Office Action

Exhibit 5 – Response to the Second non-final Office Action

Exhibit 6 – First non-final Office Action

Exhibit 7 - Response to the first non-final Office Action

(12) **United States Patent**  
**Brandenberg et al.**

(10) **Patent No.:** **US 6,665,173 B2**  
**(45) Date of Patent:** **Dec. 16, 2003**

(54) **PHYSICAL CONFIGURATION OF A HAND-HELD ELECTRONIC COMMUNICATION DEVICE**

(75) **Inventors:** **Carl Brock Brandenburg**, Cresson, TX (US); **Robert L. Kay**, Fort Worth, TX (US)

(73) **Assignee:** **Wireless Agents, LLC**, Fort Worth, TX (US)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 165 days.

(21) **Appl. No.:** **09/745,617**

(22) **Filed:** **Dec. 20, 2000**

(65) **Prior Publication Data**

US 2001/0048589 A1 Dec. 6, 2001

**Related U.S. Application Data**

(60) **Provisional application No.** 60/172,675, filed on Dec. 20, 1999.

(51) **Int. Cl.<sup>7</sup>** ..... **G06F 1/16**

(52) **U.S. Cl.** ..... **361/680; 361/683; 345/905; 349/84; 400/682; 312/223.1**

(58) **Field of Search** ..... **361/679-686, 361/724-727; 345/905, 156, 169; 349/58; 312/223.1-223.2; 400/88, 682**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,224,060 A \* 6/1993 Ma ..... 361/681

5,267,123 A \* 11/1993 Boothroyd et al. .... 361/681  
 5,337,212 A \* 8/1994 Bartlett et al. .... 361/681  
 5,548,477 A \* 8/1996 Kumar et al. .... 361/680  
 5,548,478 A 8/1996 Kumar et al. .... 361/681  
 5,638,257 A 6/1997 Kumar et al. .... 361/680  
 5,644,469 A \* 7/1997 Shioya et al. .... 361/681  
 5,712,760 A \* 1/1998 Coulon et al. .... 361/680  
 5,949,408 A 9/1999 Kang et al. .... 345/169  
 5,973,915 A \* 10/1999 Evans ..... 361/681  
 D416,256 S 11/1999 Griffin et al. .... D14/191  
 6,016,176 A \* 1/2000 Kim et al. .... 349/84  
 6,125,040 A \* 9/2000 Nobuchi et al. .... 361/680

**OTHER PUBLICATIONS**

"Thumb Type", sheet-type keyboard for IBM workpad/Palm Series, from OSW Mobile Computing and IrDA Total System Solution.

"Clio C-1050" mobile communication device, manufactured by Vadem.

e-concept Zaurus MI-E1.

\* cited by examiner

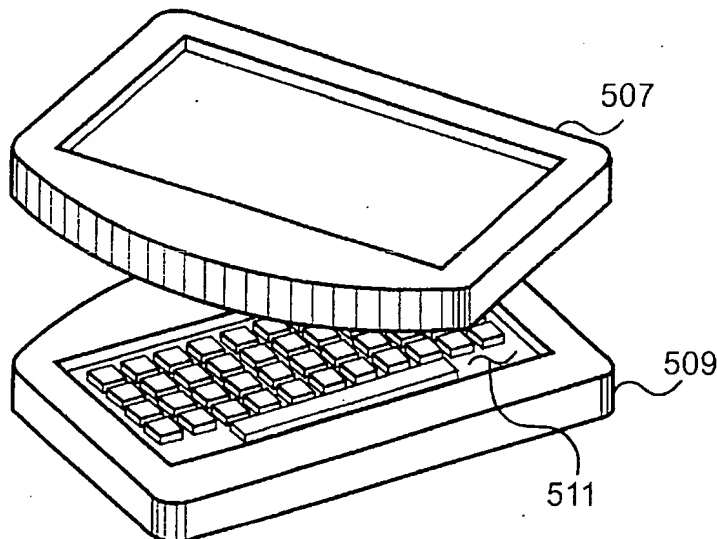
**Primary Examiner**—Lisa Lea-Edmonds

**(74) Attorney, Agent, or Firm**—James E. Walton; Melvin A. Hunn; Hill & Hunn LLP

(57) **ABSTRACT**

A hand-held, electronic, bi-directional, wireless electronic communication device having a physical configuration which includes a relatively large, constantly visible display and an alphanumeric keyboard that can be concealed until needed.

**20 Claims, 13 Drawing Sheets**



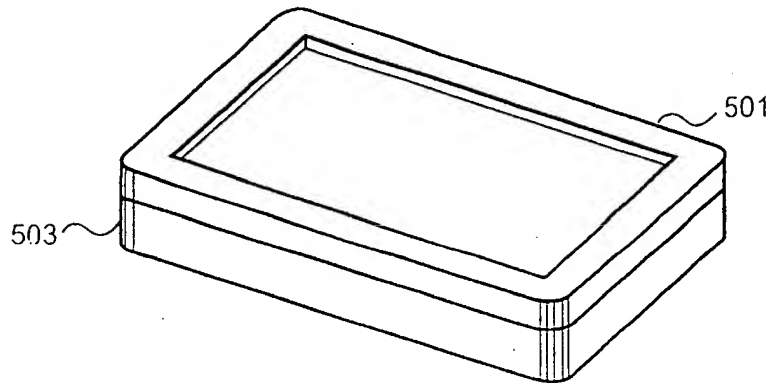


Figure 1A

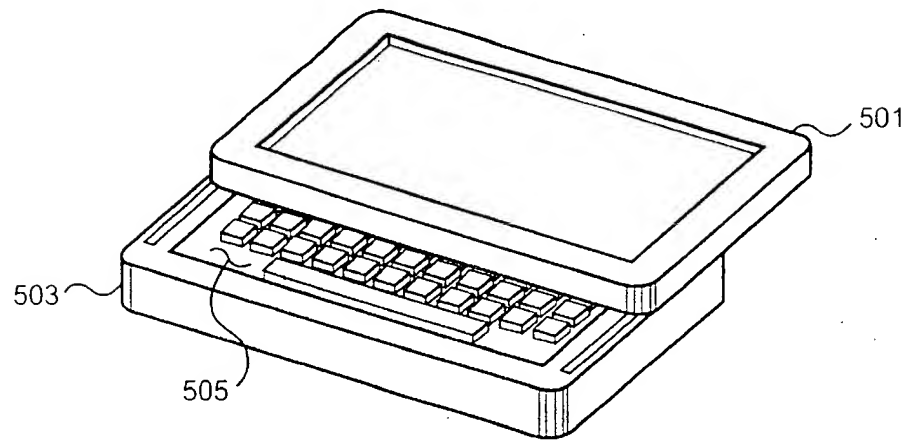


Figure 1B

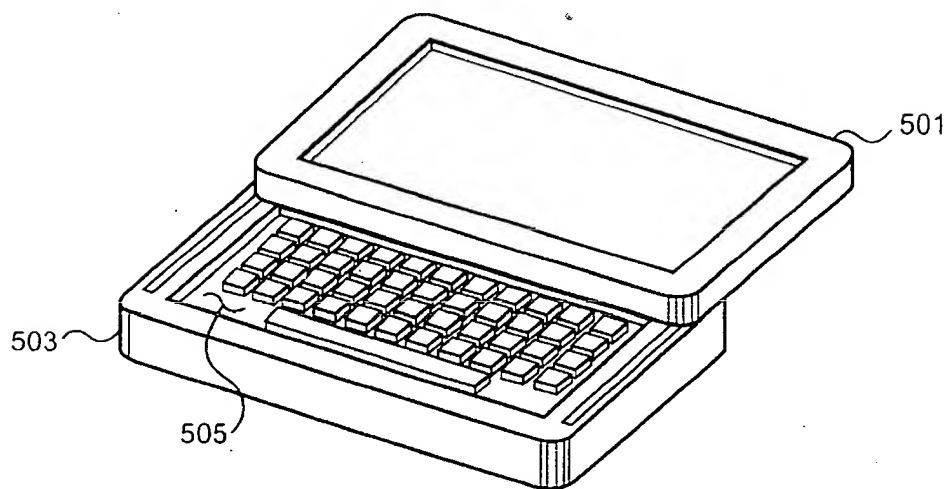


Figure 1C

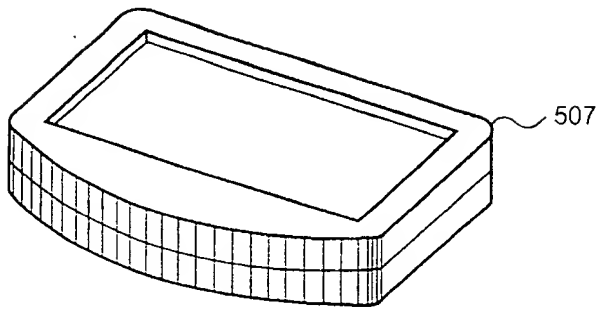


Figure 2A

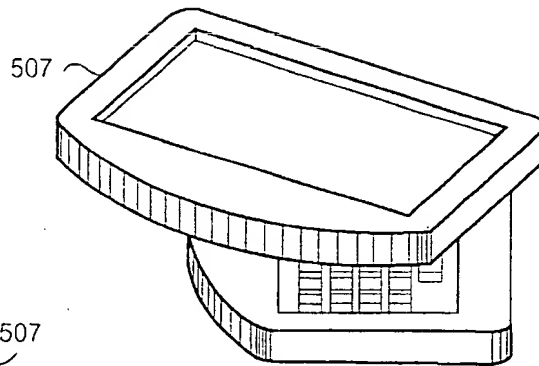


Figure 2B

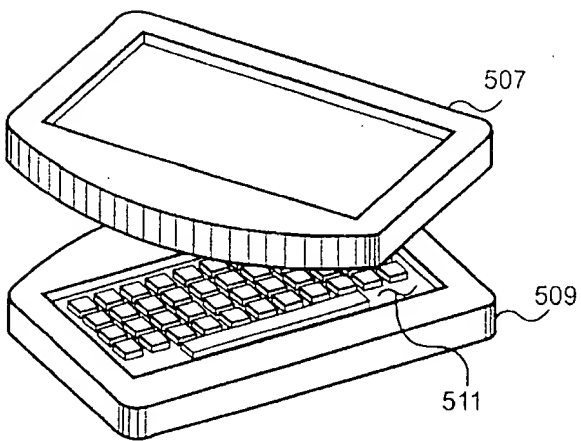


Figure 2C

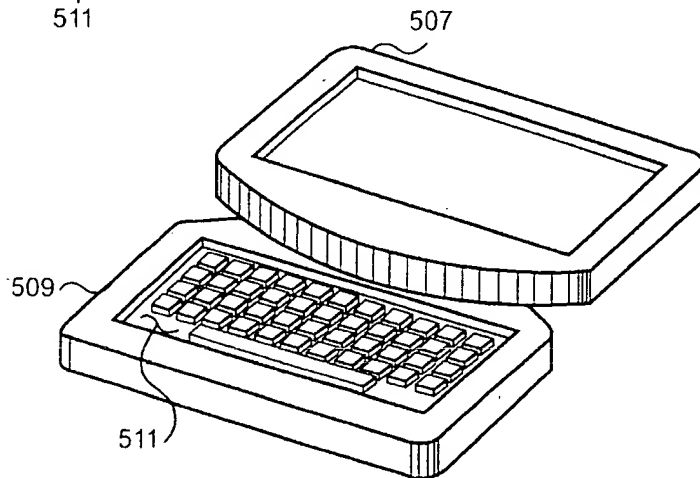


Figure 2D

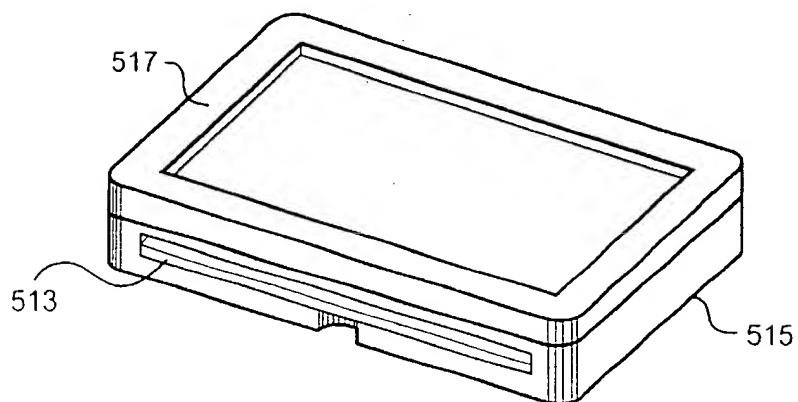


Figure 3A

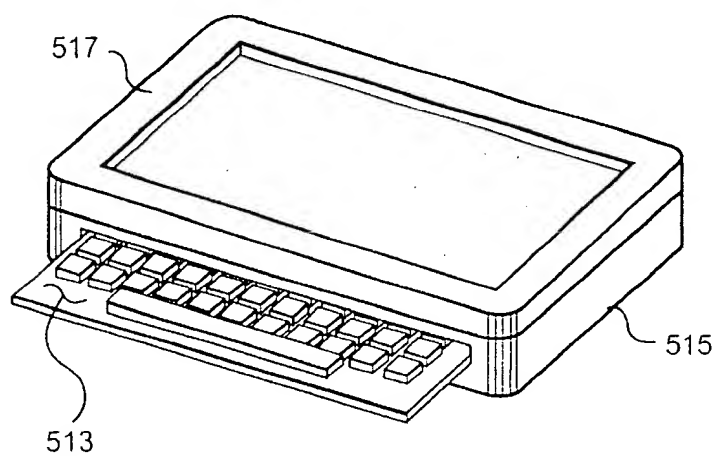


Figure 3B

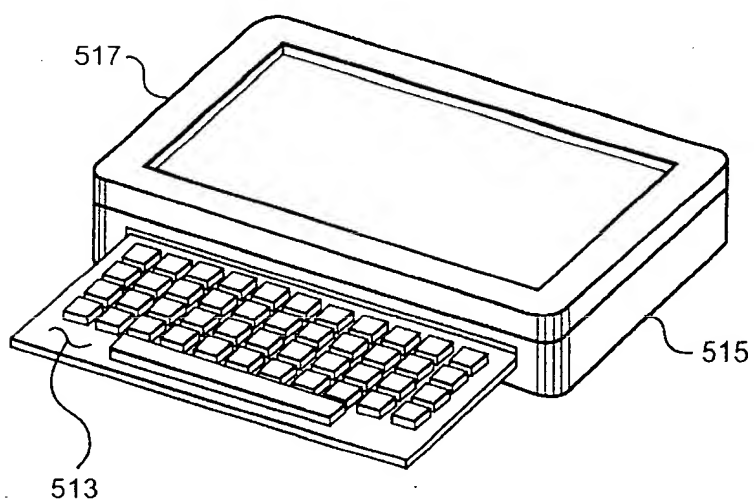


Figure 3C

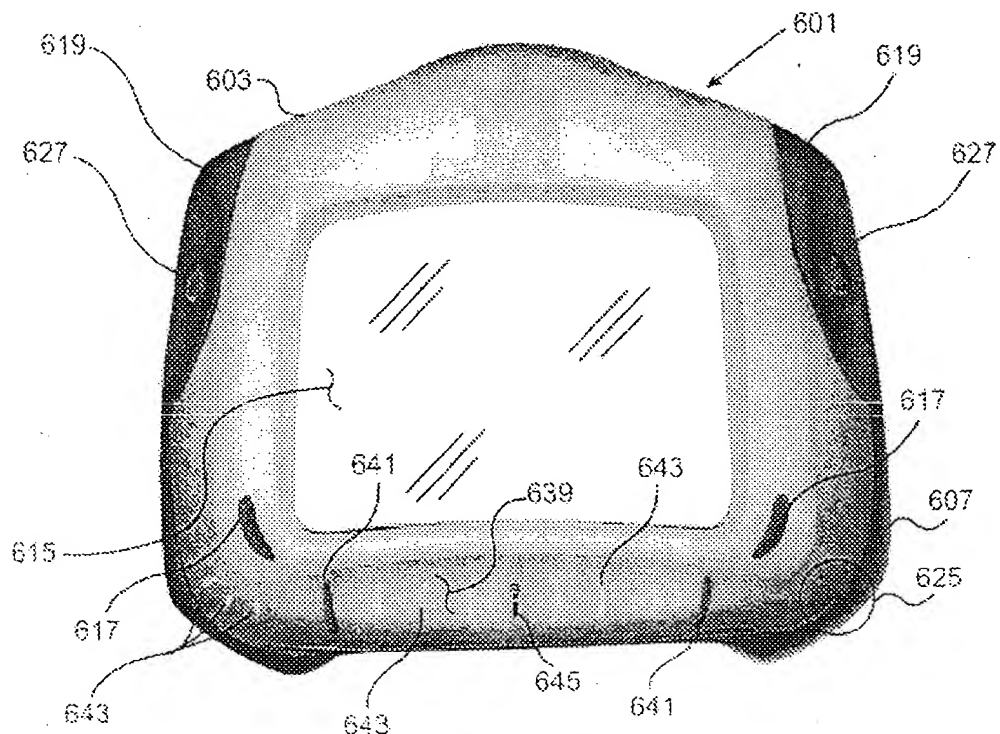


Figure 4A

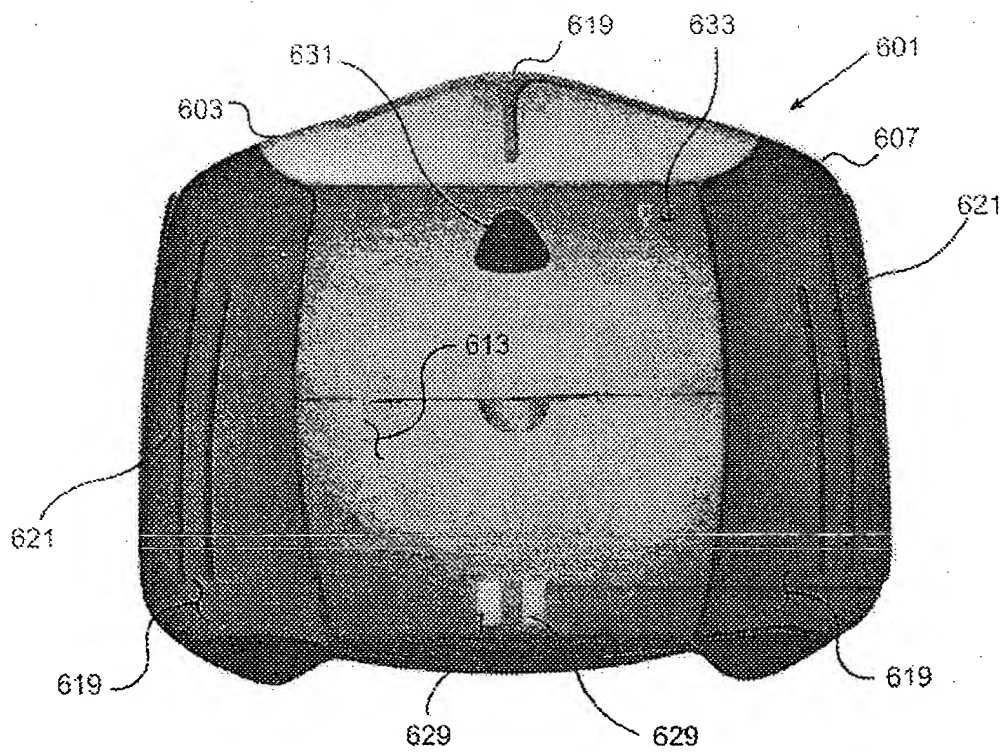


Figure 4B



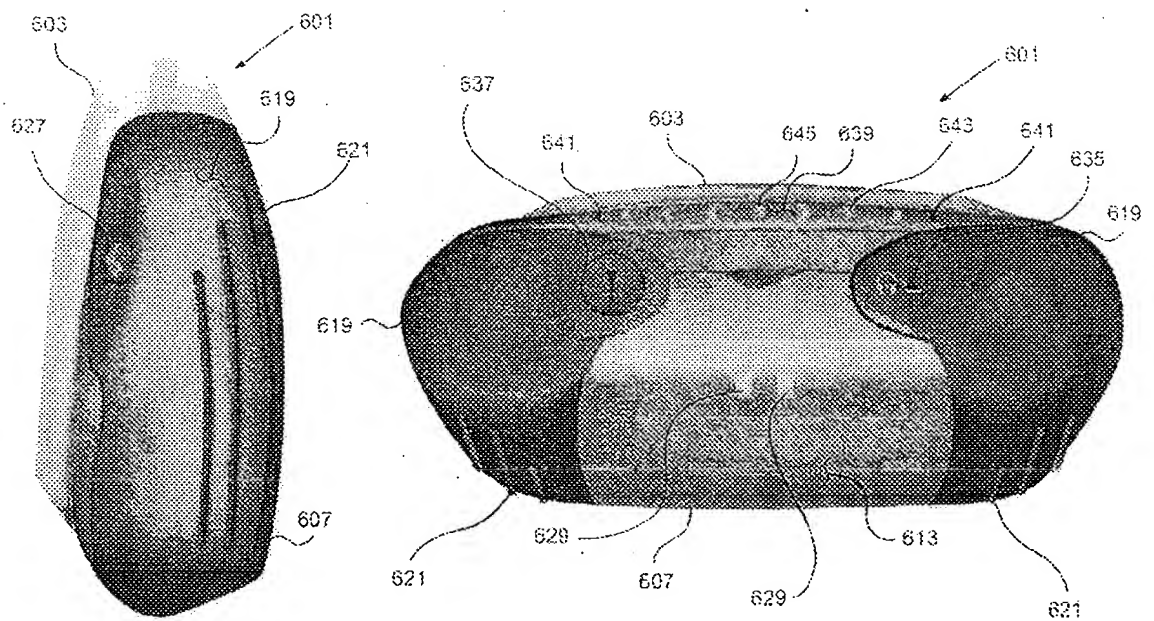


Figure 4C

Figure 4D

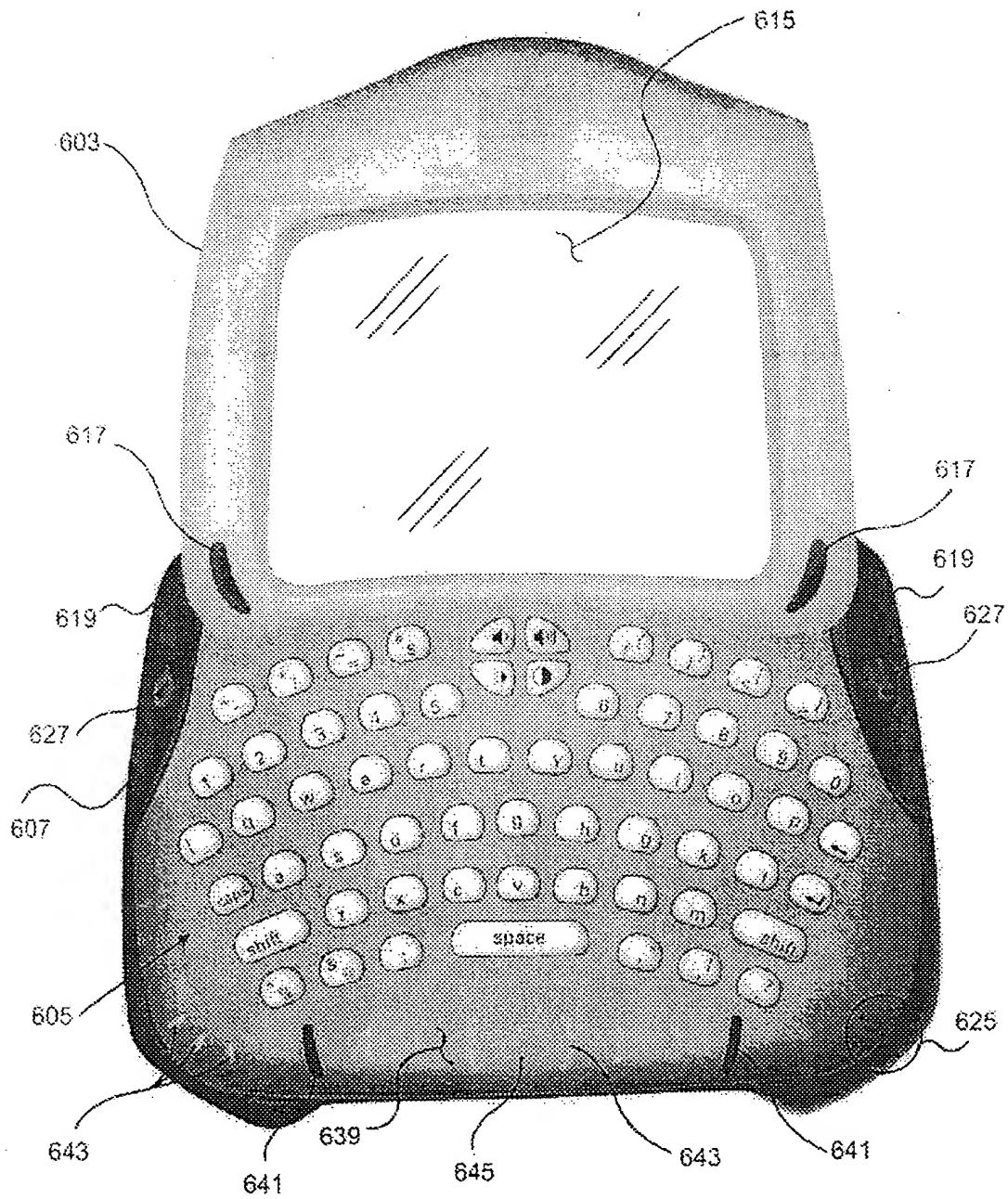
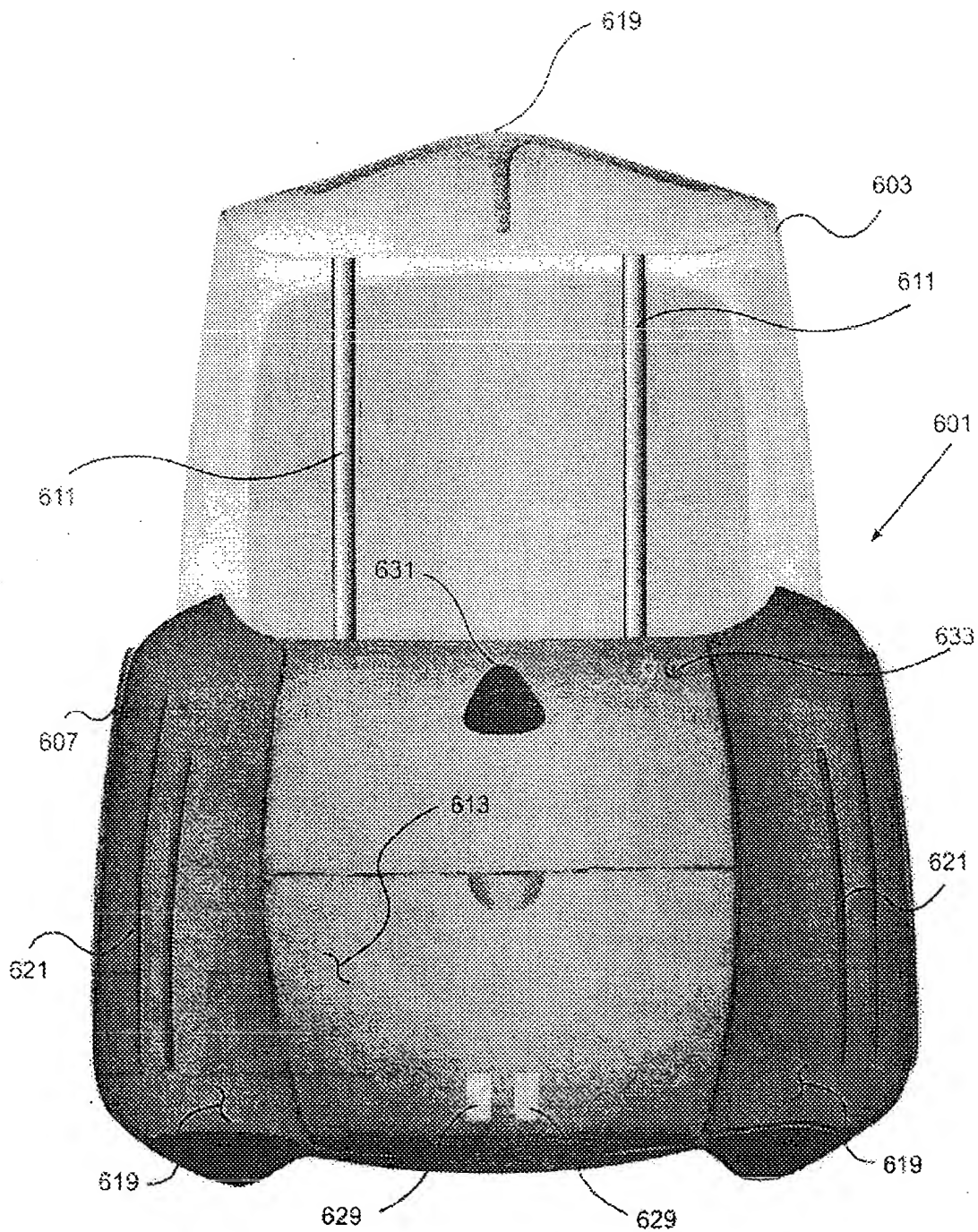
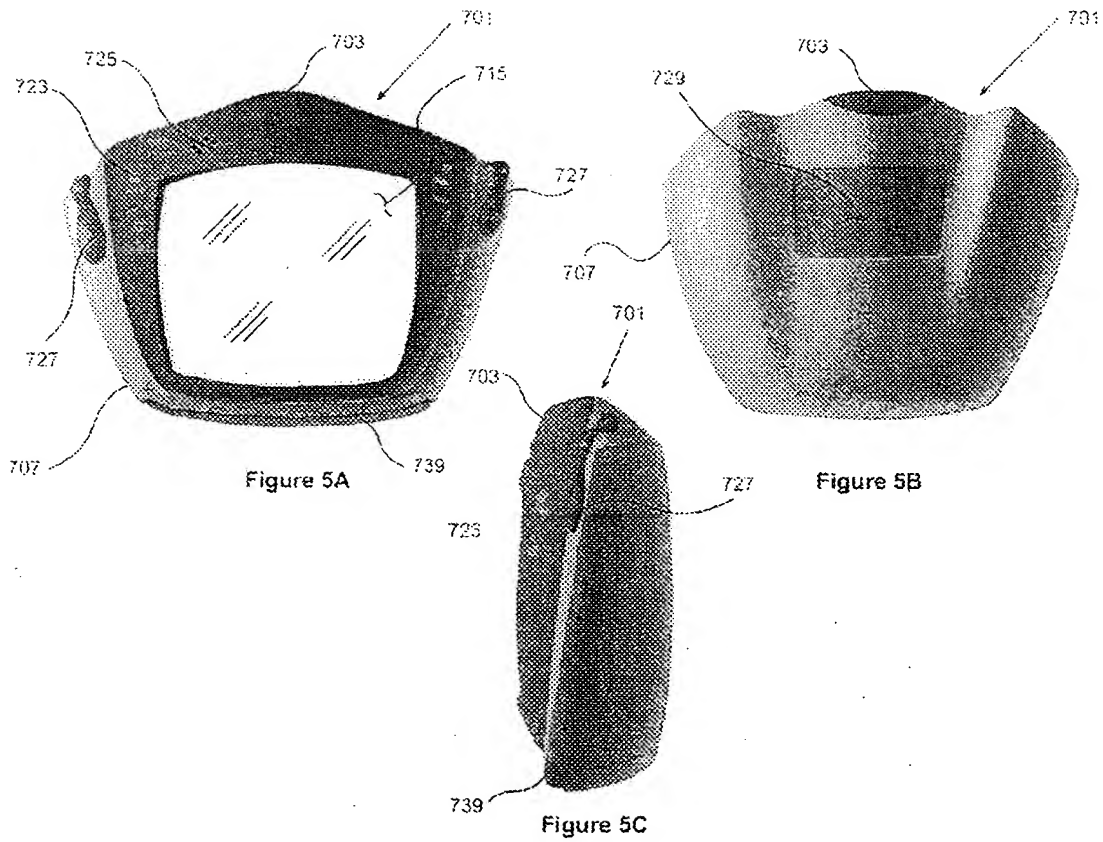


Figure 4E



**Figure 4F**



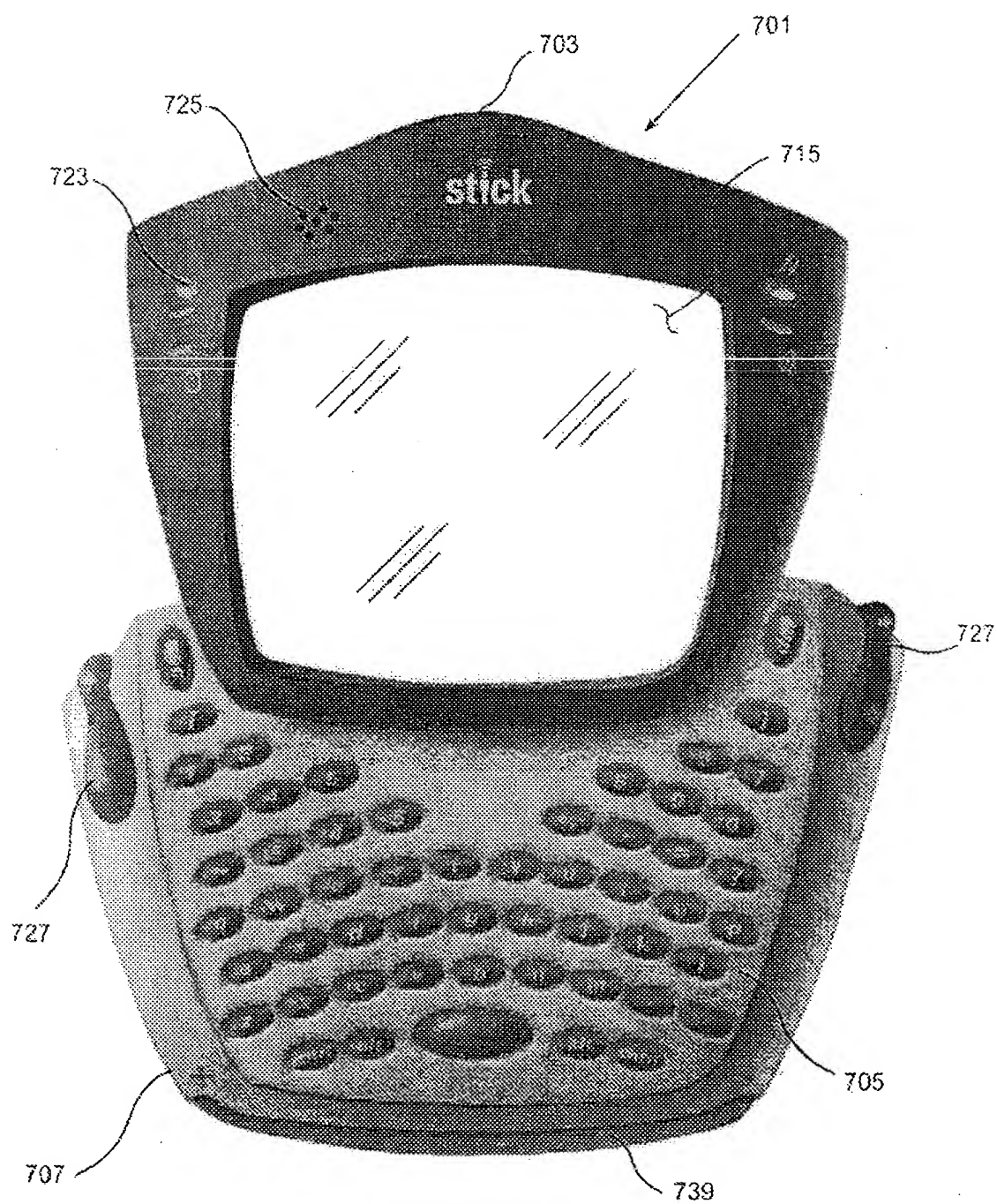


Figure 5D

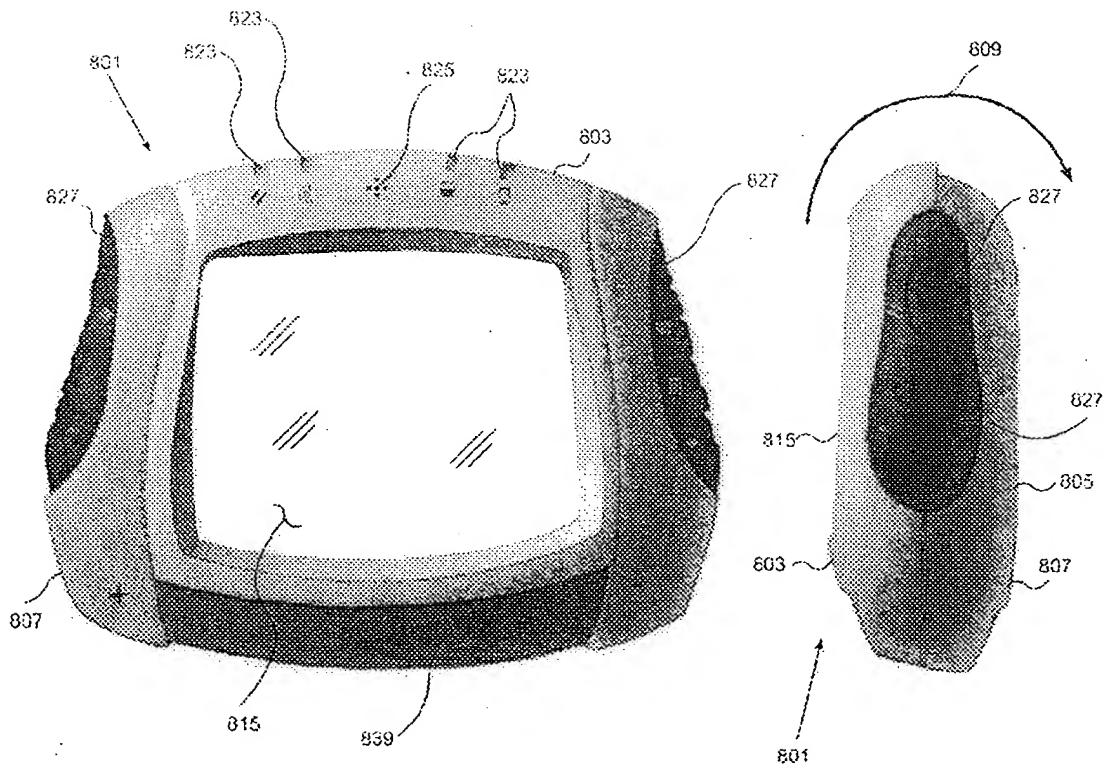


Figure 6A

Figure 6B

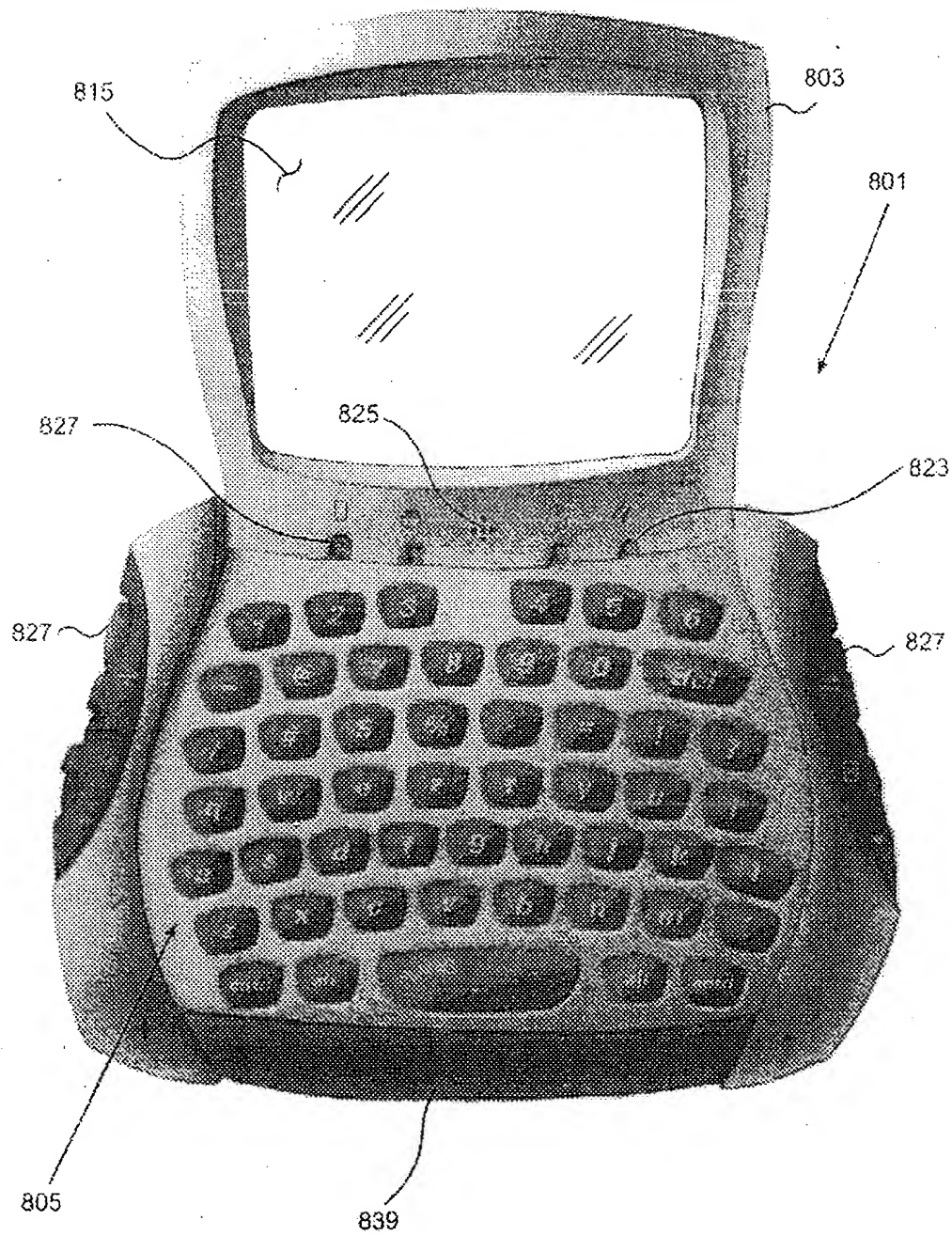
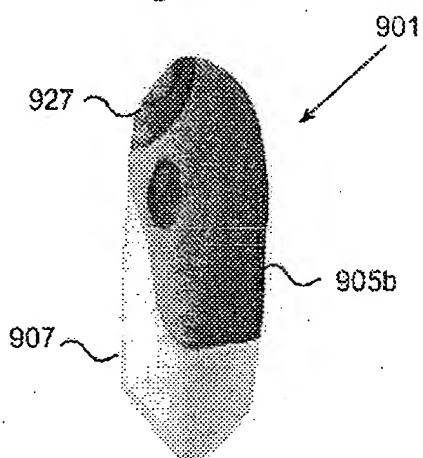
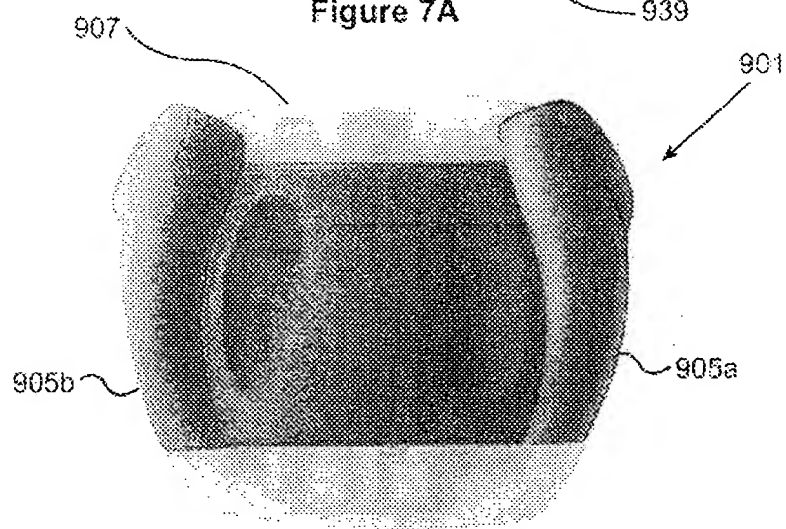
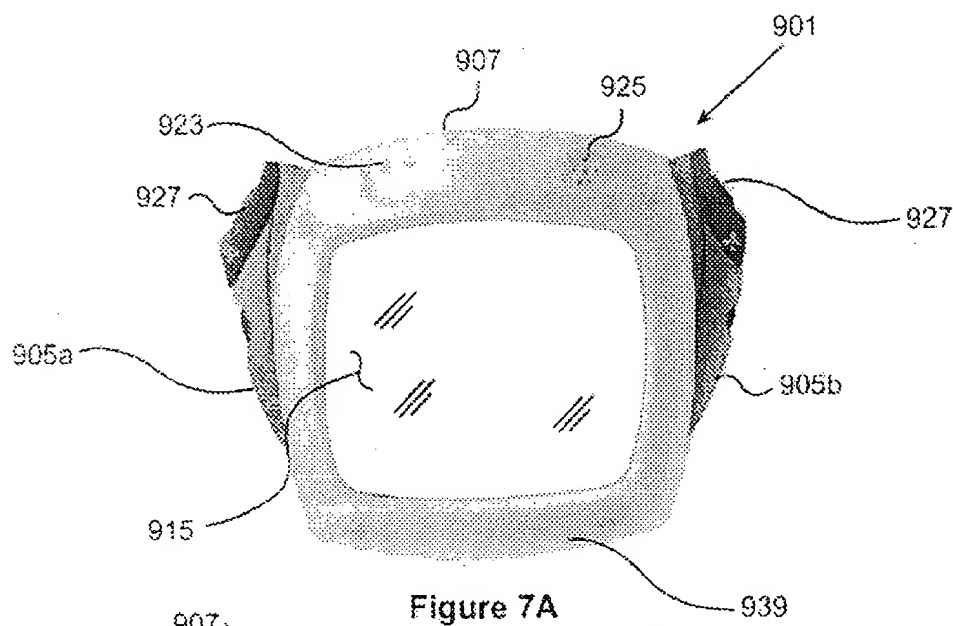


Figure 6C





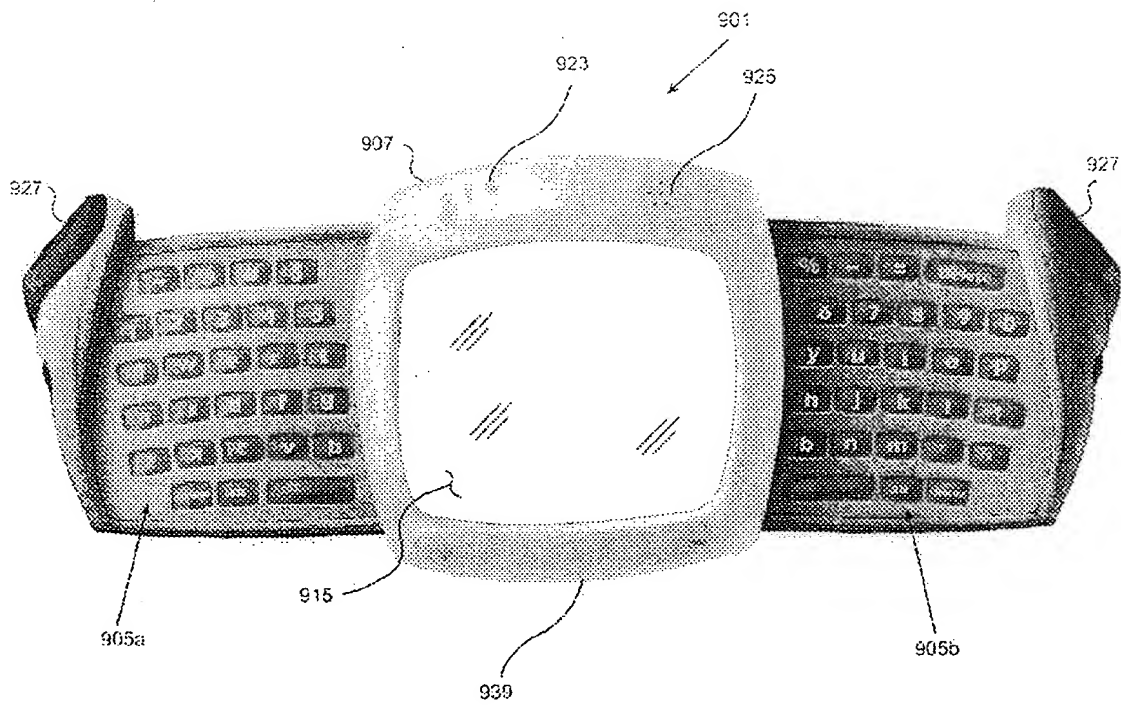


Figure 7D

# PHYSICAL CONFIGURATION OF A HAND-HELD ELECTRONIC COMMUNICATION DEVICE

This application claims the benefit of U.S. Provisional Application No. 60/172,675, filed Dec. 20, 1999, titled "Physical Configuration of a Handheld Electronic Communication Device."

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

The present invention relates to the physical configuration of hand-held, electronic devices. In particular, the present invention relates to the physical configuration of hand-held, electronic devices capable of bi-directional, wireless data communication.

### 2. Background Information

Until now, hand-held, wireless devices have primarily been used for person-to-person communication by voice, transmitting and receiving voice data in real-time. These "mobile phone" devices have allowed users to go wherever they like and still be in touch with their friends and colleagues just as though they were using a wired phone at home or work. Communication by textual means, such as e-mail, has been performed almost exclusively over land-based copper and fiber optic phone lines, because the wireless communication networks have simply not had the capacity or capability to provide cost effective, wireless transmission of textual data. But recent advancements in wireless technology have made it possible to provide cost-effective data transfer over existing wireless networks.

The most common means of textual communication has been e-mail, but a relatively new form of messaging called "instant messaging" (IM) has caught on and has grown very rapidly in popularity in the last several years. Unlike e-mail which sits in an electronic mailbox until the user retrieves his or her e-mail messages, IM occurs nearly instantaneously, producing a notification and a dialog box on a user's screen alerting the user that they have an incoming message. In addition, users have the ability to know if the recipient is on-line and available to receive an IM message.

Many hand-held, wireless devices are beginning to provide access to e-mail, but their functionality is currently very limited. The user is usually limited to browsing, that is receiving and reviewing the information, not authoring and sending data. Much like retrieving voice messages from a voice mailbox, the user is only able to retrieve e-mail messages from their e-mail inbox. The primary reason for this is that authoring messages requires a convenient method of alphanumeric data entry. Users are hesitant or reluctant to enter a message if the data entry process is slow and difficult. This is a problem that conventional devices cannot properly address due to user interface limitations, i.e., the capabilities, design, and layout of the physical devices. While e-mail may require entry of a moderate length message in response to a received message, such data entry usually happens at a time the user deems appropriate and convenient, not at a time dictated by the sender of the message. This is very much like the user being able to periodically check voice messages in a voice mailbox, and respond at the user's convenience.

However, IM and other types of instantaneous textual and graphical communication are more real-time and intrusive than e-mail; the same way that an incoming phone call is more real-time and intrusive than checking voice messages. IM is a much more frequently accessed and used system than

an e-mail client; therefore, IM requires a network and device that are much more convenient to use than an e-mail client. Such a level of convenience has been possible with wired connections and desktop computers. With traditional desktop computers, the computer is placed on or near the work surface and the display and keyboard are easily accessible. The user can immediately see incoming IM messages presented on the display, then respond to the IM messages using the keyboard. The user does not have to remove a device from the user's belt clip or pocket and open the device to see the IM message. Neither does the user have to then locate a work surface for support and connect a peripheral keyboard in order to compose a response.

There are a variety of devices available that are capable of providing wireless access to textual information, such as mobile phones, personal digital assistants (PDA's), hand-held computers, and two-way pagers, but the compromises in all of these designs limit their suitability as IM devices. For some of these devices, the displays are always visible and easy to see, but the device lacks an input device, has a small and inappropriate input device, has a slow and error prone method of data entry, or requires additional peripheral devices and a work surface for support. For other devices, a suitable input device is present, but the device transforms between multiple states which prevent the display from being seen in one of the states, limiting the convenience of using the device on a frequent basis.

Conventional wireless communication devices can be categorized into several distinct configurations: (1) mobile phones, commonly known as cellular phones; (2) personal digital assistants, commonly referred to as PDA's; (3) hand-held computers, commonly referred to as palmtop computers; and (4) two-way pagers.

The configuration of a mobile phone typically consists of: (1) a small display that is always visible; (2) a keypad for numeric data entry; and (3) an internal communication module that can transmit and receive analog and/or digitized voice data.

The mobile phone configuration has the following disadvantages: (1) the display is typically very small and inappropriate for display of large amounts of textual data, i.e., they are typically proportioned for one or two rows of phone numbers and proper names, not textual data in the structure of a written sentence; (2) the keypad is commonly located adjacent to the display, increasing the overall size of the unit; (3) on some units, the device has a clamshell design that obscures both the keypad and display when closed; (4) the keypad is typically a twelve-digit keypad designed for numeric data entry, although the keyboard usually supports alphanumeric character entry for the purpose of entering proper names into an address book maintained in the phone's memory, whereby the commonly used method of accessing alphanumeric characters is to switch the device into a text entry mode, then press a key repeatedly to access a particular one of a subset of characters available for each key, this method being extremely slow, awkward, error prone, and not appropriate for a device intended to transfer textual data on a regular basis; and (5) the communication module is typically engineered to support voice communication, and in only the latest device versions, limited retrieval of alphanumeric data.

The configuration of a PDA typically consists of: (1) a large display that is always visible; (2) a touch screen and stylus for data entry; (3) no keyboard for data entry; and (4) no internal communication module.

The PDA configuration has the following disadvantages: (1) the device has no keyboard, so alphanumeric data entry

is usually performed in one of two ways: (a) the user taps with a hand-held stylus on a "soft" keyboard that is drawn on the display, or (b) the user writes on screen with a hand-held stylus and the processor converts the user's writing into text data; (2) an optional detachable keyboard may be available, but the keyboard usually requires a flat surface for support during use as it is tethered to the device by a cable or attaches in such a way that it will easily become detached if tilted, thus making the keyboard extremely awkward for use in one hand while on the move; and (5) the device lacks a communication module, although modules may sometimes be added, but at the expense of consuming the port available for connecting the optional keyboard to.

The configuration of a palmtop computer typically consists of: (1) a large display screen; (2) a complete keyboard; (3) a clamshell design where the display closes over the keyboard, or a flat layout where the display is located adjacent to the display; and (4) no internal communication module.

The palmtop configuration has the following disadvantages: (1) although the clamshell design affords protection to the display and keyboard when the device is closed, the clamshell design often renders the display non-visible when the device is closed, and is not adequate for frequent presentation of information to a user on the move; and (2) the relatively large size makes the device prohibitive for use as an IM device, because when a large display and keyboard are present, the device becomes inconvenient for the user to carry on a regular basis, resulting in the usability of the display and keyboard being greatly reduced.

The configuration of a two-way pager typically consists of: (1) a small display screen; (2) a small, complete keyboard; and (3) a flat layout where the keyboard is located adjacent to the display, or clamshell design where the display folds over the keyboard when closed.

The two-way pager configuration has the following disadvantages: (1) units with a flat layout have displays that are always visible, but to keep the overall device size down, the display and keyboard are reduced to minuscule dimensions which greatly reduces their usability; and (2) units with a clamshell design, render the display non-visible when the unit is closed, adding inconvenience when the user must look at the display.

The distinction between each category of devices is blurring daily, but a trend is very evident in all the previously mentioned devices. The devices are either: (1) designed primarily for voice communication and have limited alphanumeric entry capability, or a capability that is not suited to use in your hands while on the move; or (2) designed primarily for occasional retrieval and display of textual information and have a design that is very inconvenient for frequent input and viewing of data while on the move.

Some of these concepts are embodied in the following U.S. patents: U.S. Design Pat. No. Des. 416,256 issued to Griffin et al. which discloses a hand-held messaging device with keyboard; U.S. Pat. No. 5,548,478 issued to Kumar et al. which discloses a portable computing device having an adjustable hinge; U.S. Pat. No. 5,638,257 issued to Kumar et al. which discloses a combination keyboard and cover for a hand-held computer. U.S. Pat. No. 5,712,760 issued to Coulon et al. which discloses a compact foldable keyboard; and U.S. Pat. No. 5,949,408 issued to Kang et al. which discloses a dual orientation display hand-held computer. These devices either have fixed keyboards or use folding clamshell designs. As such, they are not good choices for IM and other types of instantaneous textual and graphical communication.

Although the devices, designs, and physical configurations discussed above represent great strides in the area of physical configuration of hand-held communication devices, many shortcomings remain.

#### SUMMARY OF THE INVENTION

There is a need for a hand-held, electronic, bi-directional, wireless communication device that 1) contains a relatively large, constantly visible display capable of rich presentation of information, 2) that contains an alphanumeric keyboard that is usable by human hands and 3) that is small enough to carry and convenient enough to use under usage conditions typically encountered with a mobile phone device.

Therefore, it is an object of the present invention to provide a hand-held, electronic, bi-directional, wireless communication device having a physical configuration which includes a relatively large, constantly visible display and an alphanumeric keyboard that can be concealed until needed.

It is another object of the present invention to provide a hand-held, electronic, bi-directional, wireless communication device having a physical configuration which includes a body portion, a display portion that translates relative to the body portion, a relatively large, constantly visible display carried by the display portion, and an alphanumeric keyboard carried by the body portion, the alphanumeric keyboard being concealed by the display portion when not in use.

It is another object of the present invention to provide a hand-held, electronic, bi-directional, wireless electronic communication device having a physical configuration which includes a body portion, a display portion that pivots relative to the body portion, a relatively large, constantly visible display carried by the display portion, and an alphanumeric keyboard carried by the body portion, the alphanumeric keyboard being concealed by the display portion when not in use.

It is another object of the present invention to provide a hand-held, electronic, bi-directional, wireless communication device having a physical configuration which includes a body portion, a display portion coupled to the body portion, a relatively large, constantly visible display carried by the display portion, and an alphanumeric keyboard that translates into the interior of the body portion when not in use.

It is another object of the present invention to provide a hand-held, electronic, bi-directional, wireless communication device having a physical configuration which includes a body portion, a display portion coupled to the body portion, a relatively large, constantly visible display carried by the display portion, and a two-piece alphanumeric keyboard that translates into the interior of the body portion when not in use.

These objects are achieved by providing a hand-held, electronic, bi-directional, wireless communication device having a physical configuration which includes a relatively large, constantly visible display and an alphanumeric keyboard that can be concealed until needed. The communication device of the present invention has a physical configuration operable between an "open" state in which the alphanumeric keyboard is visible, and a "closed" state in which the alphanumeric keyboard is concealed. This allows the information presented by the communication device to be viewable in either the open or closed state. A user can quickly and easily transform the device from the closed state to the open state with either one or two hands, while viewing

the constantly visible display without interruption. The display is larger than those used on mobile phones and can display text and graphics at a convenient size and resolution. The alphanumeric keyboard is easier and faster to use and learn than the keypads and touch screens on most mobile phones and personal digital assistants. The keyboard may be a keyboard with a layout such as the common "QWERTY" layout, but need not be limited to this particular layout. Other layouts may include the "FITALY" layout, the "Dvorak" layout or any other alphanumeric layout that includes a substantially full set of alphanumeric keys.

The present invention has many advantages over existing device configurations. Because the display is constantly visible, the user can immediately see incoming messages or communications and respond appropriately. The display is relatively large to accommodate long textual messages, graphical communications, or a combination of both. The user can quickly and easily transform the device from the closed state to the open state without his view of the display being interrupted. The full alphanumeric keyboard allows the user to quickly and easily transmit messages and other textual and graphical communications in a complete and intuitive manner without having to attach peripheral devices. The unique physical configuration of the present invention is not only effortless to learn and use, it encourages users to participate in these new forms of communication.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is a perspective view of a simplified representation of the hand-held, electronic communication device having a physical configuration according to the present invention.

FIG. 1B is a perspective view of the device of FIG. 1A depicting how a constantly visible display translates relative to a body portion to expose a keyboard or other data input device that is carried by a body portion.

FIG. 1C is a perspective view of the device of FIG. 1A with the constantly visible display in a position which fully reveals the keyboard or data input device.

FIG. 2A is a perspective view of an alternate simplified representation of a hand-held, electronic communication device having a physical configuration according to the present invention.

FIG. 2B is a perspective view of the device of FIG. 2A depicting how a constantly visible display pivots relative to a body portion to reveal a keyboard or other data input device.

FIG. 2C is a perspective view of the device of FIG. 2A depicting how the constantly visible display further pivots relative to the body portion to reveal the keyboard or other data input device.

FIG. 2D is a perspective view of the device of FIG. 2A with the constantly visible display pivoted to fully reveal the keyboard or other input device.

FIG. 3A is a perspective view of an alternate simplified representation of a hand-held, electronic communication device having a physical configuration according to the present invention.

FIG. 3B is a perspective view of the device of FIG. 3A depicting how a keyboard or other data input device extends outward from the interior of a body portion.

FIG. 3C is a perspective view of the device of FIG. 3A with the keyboard or other data input device in a fully extended position.

FIG. 4A is a front view of a hand-held, electronic, bi-directional wireless communication device having a

physical configuration of the type illustrated in FIGS. 1A-1C in a closed state.

FIG. 4B is a rear view of the device of FIG. 4A.

FIG. 4C is a right side view of the device of FIG. 4A.

FIG. 4D is a bottom view of the device of FIG. 4A.

FIG. 4E is a front view of the device of FIG. 4A in an open state in which a constantly visible display is translated relative to a body portion to fully reveal a keyboard or other input device.

FIG. 4F is a rear view of the device of FIG. 4A while in the open state of FIG. 4E.

FIG. 5A is a front view of an alternate hand-held, electronic, bi-directional wireless communication device having a physical configuration of the type illustrated in FIGS. 1A-1C in a closed state.

FIG. 5B is a rear view of the device of FIG. 5A.

FIG. 5C is a right side view of the device of FIG. 5A.

FIG. 5D is a front view of the device of FIG. 5A in an open state in which a constantly visible display is translated relative to a body portion to fully reveal a keyboard or other input device.

FIG. 6A is a front view of a hand-held, electronic, bi-directional wireless communication device having a clamshell-type physical configuration in which a keyboard or other input device hingedly pivots relative to a constantly visible display.

FIG. 6B is a right side view of the device of FIG. 6A.

FIG. 6C is a front view of the device of FIG. 6A with the keyboard or other input device fully pivoted relative to the constantly visible display fully reveal the keyboard or other input device.

FIG. 7A is a front view of a hand-held, electronic, bi-directional wireless communication device having a physical configuration of the type illustrated in FIGS. 3A-3C.

FIG. 7B is a rear view of the device of FIG. 7A.

FIG. 7C is a right side view of the device of FIG. 7A.

FIG. 7D is a front view of the device of FIG. 7A with a two-piece keyboard fully extended outward from the interior of a body portion.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring generally to FIGS. 1A-1C, 2A-2D, and 3A-3C in the drawings, simplified representations of a hand-held, electronic communication device having a physical configuration according to the present invention are illustrated. To be convenient for IM and other instantaneous textual and graphical communications, a device must be able to support effortless reading of incoming IM messages and rapid entry of responses. Such support minimizes the inconvenience of the intrusion of the IM message. The device should allow a minimum amount of effort to perform the tasks involved when using IM.

The device configuration of the present invention provides the following unique and distinct features:

1. A relatively large display screen capable of displaying textual and graphical information, allowing for a rich presentation of information;
2. A display screen that is always visible. If, for example, the device must transition from a closed state that is characterized by maximum portability to an open state that is characterized by maximum usability, the display

is constantly visible in each state. Users are very intolerant of a device that must be manipulated and opened in order to view the display each and every time a message or notification occurs;

3. An alphanumeric data entry means that is suitable for use with human hands without the aid of an additional pointing device such as a stylus and that is designed for rapid entry of alphanumeric data; and
4. A relatively small size which makes the device convenient for portable use and allows the device to be operated, ideally, with one or two hands.

To ensure that the device of the present invention is appropriate for mobile use, the device is small and convenient to carry and use. The device is capable of being configured in at least two distinct states that maximize both its portability and usability. One device state maintains a small footprint, whereby the device consumes a minimal amount of volume and affords a greater level of portability and concealment, herein called the "closed" state. In this closed state, the display is visible, but the keyboard is concealed to minimize space and maximize portability. A second device state affords a more efficient level of alphanumeric data entry, herein called the "open" state. In the open state, the display is visible and the keyboard is accessible to maximize usability. The device can transition from the open state to the closed state easily and with a minimum of effort, preferably with one hand. Preferably, the display translates relative to the main housing to reveal the keyboard. However, the display may either pivot or rotate relative to the housing to reveal the keyboard, or the keyboard may telescope into the interior of the housing. In the preferred embodiment, the device's display remains visible in either state, allowing the user to observe incoming messages without having to manipulate the device to transition it from one state to another, such as from closed to open.

In order to overcome the limitations of current hand-held, electronic devices that serve or can be adapted to the purpose of bi-directional, wireless communication of textual and graphical information, the present invention provides a new and improved configuration of a device that allows for the inclusion in the device of both a large, always visible display screen and an alphanumeric data input device that allows rapid and comfortable entry of alphanumeric data. The device of the present invention preferably has a large, color display screen capable of displaying textual and graphical information for rich presentation of information. Because the display screen is always visible and hence exposed and susceptible to damage, a cover made of either a rigid or flaccid material to afford protection may protect the display. The cover may be of a material such as a clear plastic or rubber that allows the display to remain visible even when covered. Further, the device of the present invention has an alphanumeric data input device that allows rapid and comfortable entry of alphanumeric data. The present invention provides a configuration such that the device can be held and operated with one or two hands in a convenient and comfortable manner under usage conditions typically encountered with a mobile phone device.

The device of the present invention comprises at least the following components: (1) an alphanumeric data input device, such as a full QWERTY-type keyboard or thumb-board; (2) a display device, such as an LCD, LED, or LEP display screen; (3) a processor; (4) a power source, such as a battery or mechanical generator like a wind-up spring mechanism; (5) a communication module, such as a CDPD, CDMA, GSM or GPRS radio capable of wireless data

transmission and reception; and (6) a physical housing that contains these components and that consists of at least two discrete portions that may translate, rotate and/or pivot relative to one another, one portion containing a display device and one portion containing a keyboard.

The display, preferably color, is always visible as the device transitions from a closed state characterized by maximum portability to an open state characterized by maximum usability. The display may translate, rotate, or revolve relative to the main housing of the device. The display will be large enough to accommodate simultaneous textual messages, graphical displays, and graphical animations. The device and corresponding wireless network include integral support of IM and other instantaneous textual and graphical communication. The exterior layout of the device is heavily influenced by the capability to effectively utilize these types of instantaneous communication.

Although the device may be placed in an "off" state in which no power is supplied to the device, it is preferred that the device remain either in an "on" state in which the device has full functionality, or a "sleep" state in which the device may appear to the user to be off, but is, in fact, performing certain background functions. In the fully functional "on" state, the device is displaying digital content and the user is interacting with the device. In the "sleep" state, the user is not interacting with the device and the display screen on the device has cycled down and is not actively displaying digital content. In the sleep state, the display screen may be blank or may be displaying a preprogrammed graphic or image. If the device is in the sleep state and the user begins to interact with the device, or if the user receives a "hot" communication, the device immediately switches from the sleep state to the on state so that the user may fully utilize all features and functionality of the device.

The device may include a variety of additional input/output components, such as lights, LED's, buttons, joysticks, a touch pad, an analog responder, and others components which allow the user to view information and manipulate the device to a certain degree without transitioning the device to the open state.

A first device configuration is specifically depicted in FIGS. 1A-1C. A constantly visible display 501 translates relative to a body portion 503 to reveal a full QWERTY-type keyboard or other input device 505. This first device configuration includes the following features: (1) the display remains visible when the device is in either the open or closed state; (2) in the closed state, the display remains visible, but obscures the full keyboard or other input device; (3) the display is generally parallel with the keyboard or other input device and translates relative to the body portion such that the keyboard or other input device is revealed when the device is transitioned from the closed state to the open state; and (4) when transitioning from the closed state to the open state, the display translates in a plane that is generally parallel to the plane of the keyboard or other input device.

A second device configuration is specifically depicted in FIGS. 2A-2D. A constantly visible display 507 pivots relative to a body portion 509 to reveal a full QWERTY-type keyboard or other input device 511. This second device configuration includes the following features: (1) the display remains visible when the device is in either the open or closed state; (2) in the closed state, the display remains visible, but obscures the input device; (3) the input device is movable such that it is revealed from below the display when the device is transitioned from the closed state to the open state; and (4) when transitioning from the closed state

to the open state, the input device moves in one or a combination of a sliding, hinging, or pivoting movements.

A third device configuration is specifically depicted in FIGS. 3A-3C. An input device 513 translates into a body portion 515 which carries an always visible display 517. This third device configuration includes the following features: (1) the display remains visible when the device is in either the open or closed state; (2) in the closed state, the keyboard display remains visible, but obscures the input device; (3) the input device is movable such that it is revealed from below the display when the device is transitioned from the closed state to the open state; and (4) when transitioning from the closed state to the open state, the input device moves in one or a combination of a sliding, hinging, or pivoting movements.

Regardless of the configuration chosen, the device is a hand-held device that can be held by one or two hands and conveniently carried or worn by the user on his or her person. The device is operated in a convenient and comfortable manner under usage conditions typically encountered with a mobile phone device.

The preferred configuration of a device 601 according to the present invention is illustrated in FIGS. 4A-4F. The physical configuration of device 601 corresponds to the configuration illustrated in FIGS. 1A-1C. In FIGS. 4A-4D, device 601 is shown in the closed state in which an always visible display portion 603 conceals a novel QWERTY-type thumbboard 605 that is carried by a body portion 607. In FIGS. 4E and 4F, device 601 is shown in an open state in which display portion 603 has been translated relative to body portion 607 to reveal thumbboard 605. As is best seen in FIG. 4F, display portion 603 may include a plurality of rigid support rails 611 that telescope into body portion 607 to provide additional support of display portion 603 while device 601 is in the open state. It should be understood that other support means, such as interlocking grooves on display portion 603 and body portion 607 may also be used to provide additional support for display portion 603. Display portion 603 is dimensioned to house a plurality of components (not shown). Such components may or may not be directly related to the display of images, such as a GPS antenna and integrated circuit boards. Likewise, body portion 607 is dimensioned to house a plurality of electronic components and systems and necessary integrated circuit boards, such as the microprocessor (not shown) and cache memory (not shown).

Display portion 603 includes a display screen 615. Display screen 615 is preferably a high-resolution, 16-bit color, reflective LCD screen being 320x240 pixels having a diagonal display area of about 3.8 inches. It should be understood that other comparable display screens may be used. Although always visible, display screen 615 will cycle down to a "power save" mode during periods of non-use to conserve power. A cover or shade (not shown) may be utilized to protect display screen 615 from damage, to enhance visibility, to prevent glare, or to alleviate or minimize other common problems associated with such display screens. In the preferred embodiment, display screen 615 is covered by a protective bezel (not shown).

Device 601 is powered by a portable power supply (not shown), such as batteries. In this regard, a power supply cover 613 is provided to cover and protect the portable power supply. In the preferred embodiment, the portable power supply is rechargeable by placing device 601 in a docking station or charging station (not shown). Although device 601 operates on DC current, device 601 may be plugged into and powered by a conventional 110-Volt wall

outlet (not shown) with the use of a conventionally functioning AC to DC power transformer (not shown).

A plurality of push pads 617 are located at selected locations on display portion 603. Push pads 617 are preferably located such that the user may translate display portion 603 relative to body portion 607 by pushing on push pads 617 with his thumb or thumbs. In the preferred embodiment, display portion 603 is preferably made of rigid, molded plastic or similar material. Body portion 607 is preferably made of a similar material. As has become popular in recent years, display portion 603 and/or body portion 607 may be partially transparent or translucent, having a colored tint. A plurality of protective bumpers 619, preferably made of rubber or rubberized plastic, are coupled to display portion 603 and body portion 607 at selected locations. A plurality of raised grips 621 may be integrated into protective bumpers 619 to facilitate handling of and interaction with device 601. Device 601 may be of modular construction so that a plurality of the external components may be quickly and easily interchanged. Such interchangeability allows the user to choose from a wide variety of exterior styles and designs, thereby customizing device 601 to the user's particular tastes. In this manner, the appearance of device 601 can be modified to suit the user's ever changing moods and attitudes.

Device 601 includes a plurality of input/output devices, such as LED's 623, at least one speaker 625, a plurality of joysticks 627, conductive power terminals 629 for attachment to the docking station, an infrared (IR) port 631 for the transfer of data, a DC adapter port 633 for attachment of the power transformer, a headphone jack 635 for use with headphone speakers, an on-off switch 637 for toggling device between an "on" state, an "off" state, and/or a "standby" state, as further explained herein, and an analog responder 639. It will be appreciated that LED's 623, joysticks 627, and on-off switch 637 may be multifunctional. For instance, LED's 623 are preferably full-spectrum color LED's that can be selectively programmed by the user to display selected colors at selected intensities and/or selected flash frequencies in response to certain conditions. LED's 623 are particularly useful when display screen 615 has cycled down into the power save mode. This allows the user to interact with device 601 without transitioning device into the open state. By using only LED's 623, speaker 625, joysticks 627, IR port 631, and analog responder 639, a user can perform a considerable amount of input/output without transitioning device 601 into the open state.

Analog responder 639 is a one-dimensional, electronic touch pad disposed within device 601. Analog responder 639 is activated by the user touching selected areas of device 601. Preferably, analog responder 639 is disposed within and centrally located along a lower edge of body portion 607 closest to the user. Such location allows analog responder 639 to be usable when device 601 is either in the closed state or the open state, i.e., when display portion 603 is translated relative to body portion 607. It is preferred that analog responder 639 be adjacent or in close proximity to display screen 615, because analog responder 639 functions primarily to manipulate a cursor or graphical images being displayed on display screen 615. The one-dimensional functional boundaries of analog responder 639 are preferably indicated by raised end ridges 641 or similar visual indicia. For example, one boundary may be indicated by a "-" sign and the opposing end boundary may be indicated by a "+" sign. Such indicia are particularly useful because a primary function of analog responder 639 is to allow the user to

selectively input a response to a query from an analog range of possible responses. Using the current example, the end boundary indicated by the “-” might represent a negative response by the user to a query, such as “I do not like pizza;” whereas the end boundary indicated by the “+” might represent a positive response by the user to the same query, such as “I love pizza.” In a similar fashion, analog responder 639 is visually segmented, preferably by raised intermediate ridges 643, or similar visual indicia placed incrementally along the length of analog responder 639 between end ridges 641. In the preferred embodiment, intermediate ridges 643 are more pronounced at the center 645 of analog responder 639 and decrease in size or shape, if applicable, toward end ridges 641. This allows the user to quickly determine which portion of analog responder 639 the user is touching, tapping, or depressing.

Referring now to FIGS. 5A–5D in the drawings, an alternate embodiment of the device of the present invention is illustrated. As with device 601, a device 701 has an always visible display portion 703 and a body portion 707. The physical configuration of device 701 corresponds to the configuration illustrated in FIGS. 1A–1C. Display portion 703 carries a display screen 715, similar in form and function to display screen 615. Display portion 703 translates relative to body portion 707 to reveal a QWERTY-type thumbboard 705 which is similar in form and function as thumbboard 605. As is shown, device 701 includes similar input/output ports and devices as device 601, such as LED’s 723, at least one speaker 725, a plurality of joysticks 727, and an analog responder 739. In addition, device 701 includes a conventional two-dimensional touch pad 729 on the backside of device 701. Touch pad 729 is located such that it can be utilized by the user while device 701 is in either the closed state or the open state. Touch pad 729 may be programmed to map to display screen 715 in either an absolute mode or a relative mode.

Referring now to FIGS. 6A–6C in the drawings, another alternate embodiment of the device of the present invention is illustrated. In this embodiment, a device 801 has a clam-shell design. As with previously discussed embodiments, device 801 has an always visible display portion 803 and a body portion 807 which carries a novel QWERTY-type thumbboard 805. In this embodiment, a screen display 815 on display portion 803 and thumbboard 805 on body portion 807 both face outward and are on opposite sides of body portion 807 when device 801 is in the closed state. As device 801 transitions to the open state, display portion 803 hingedly pivots relative to body portion 807 as indicated by arrow 809 in FIG. 6B. In the open state, display screen 815 is adjacent to and visible above thumbboard 805. As is shown, device 801 includes similar input/output ports and devices as device 601, such as LED’s 823, at least one speaker 825, a plurality of joysticks 827, and an analog responder 839.

Referring now to FIGS. 7A–7D in the drawings, another alternate embodiment of the device of the present invention is illustrated. In this embodiment, a device 901 has a telescoping design. The physical configuration of device 901 corresponds to the configuration illustrated in FIGS. 3A–3C. As with previously discussed embodiments, device 901 has an always visible display screen 915. Display screen 915 is carried by a body portion 907 into which a novel, two-piece QWERTY-type thumbboard 905a and 905b telescopes into from opposing sides of body portion 907. As is shown, device 901 includes similar input/output ports and devices as device 601, such as LED’s 923, at least one speaker 925, a plurality of joysticks 927, and an analog responder 939. Joysticks 923 are carried on each piece of thumbboard 905a and 905b.

The device of the present invention has a configuration that has a relatively small overall size, but is optimized for textual and other non-voice types of communication. With advancements in radio technology, it is possible to include voice communication capability without significantly increasing the overall size of the device. In accordance with the preferred implementation of the present invention, a plurality of alternative communication modes can be supported by the device and the associated wireless network. Some communication modes can be considered to be “cold” forms of communication, while other modes of communication may be considered to be “hot” modes of communication. A cold mode of communication has a high degree of delay or latency associated therewith. Conversely, a hot mode of communication is one which has a low degree of delay or latency associated therewith. Generally, hot modes of communication may be conducted in real time, or instantaneously. Preferably, the alternative communication modes include an e-mail mode, an IM mode, a chat mode, a voice mode, and a video phone mode. The following is a description of the operation of the present invention to enable these various modes of communication as well as the escalation or de-escalation of modes of communication.

The e-mail mode of communication is one in which text messages are keyed in by one user and communicated in a text form over the wireless network to a designated recipient. The e-mail mode of communication on the network utilizes conventional e-mail formats and protocols. E-mail messages may be accumulated and saved in an electronic in-box, whereby the e-mail messages may be read at the leisure and convenience of the recipient.

The instant messaging mode of communication is one in which text messages are keyed in by one user and delivered immediately to the recipient user if the recipient user’s device is in an IM receipt mode. IM messages received while in the IM receipt mode subordinate other content on the recipient’s device. Thus, IM is considered “hotter” than e-mail. It is desirable that the IM mode of communication on the wireless network utilizes conventional IM formats and protocols.

The chat mode of communication is one in which a plurality of communicants have initiated a chat session in which text, graphical, or voice synthesized messages are exchanged substantially concurrently in a dialog fashion. Because the users in a chat session have affirmatively established a desire to communicate with each other, chat is “hotter” than e-mail and IM. It is desired that the chat mode of communication on the wireless network utilizes conventional chat formats and protocols.

The voice mode of communication is similar to a telephone conversation. The voice mode of communication is possible when a mobile phone is embedded in the device. Because the voice mode of communication is performed concurrently between users in real time, it is “hotter” than e-mail, IM, or chat. It is desired that the voice mode of communication on the wireless network utilizes conventional cellular or digital phone formats and protocols.

The video-voice mode of communication is similar to a video phone conversation. The video-voice mode of communication is possible when a mobile video phone is embedded in the device. Because the video-voice mode of communication is performed concurrently between users in real time, and involves current video, it is “hotter” than e-mail, IM, chat, or voice. It is desired that the video-voice mode of communication on the wireless network utilizes conventional cellular or digital video phone formats and protocols.

In accordance with the preferred embodiment of the present invention, it is possible for communicants to move



13

between modes of communication from a relatively "cold" mode of communication, such as IM, to a relatively "hot" mode of communication, such as a voice. If during an IM session, the communicants decide to "switch up" to the voice communication mode, they can simply input an appropriate command to their respective devices, and the wireless network will establish the voice connection between the users.

Conversely, it is possible for communicants to de-escalate modes of communication from a relatively "hot" to a relatively "cold" mode of communication. This could be done in an effort to reduce airtime or to conserve network energy. For example, if two users are communicating to each other in the voice mode and decide to "switch down" to a chat mode which may burn less network energy, the users simply input an appropriate command to their respective devices, and the wireless network will disconnect the voice connection between the users and establish a chat session between the users.

Although the invention has been described with reference to a particular embodiment, this description is not meant to be construed in a limiting sense. Various modifications of the disclosed embodiments as well as alternative embodiments of the invention will become apparent to persons skilled in the art upon reference to the description of the invention. It is therefore contemplated that the appended claims will cover any such modifications or embodiments that fall within the scope of the invention.

We claim:

1. A hand-held, electronic computing device having a physical configuration comprising:

a body portion;

a display portion pivotally coupled to the body portion;

a constantly visible display carried by the display portion;

an alphanumeric keyboard carried by the body portion;

wherein the alphanumeric keyboard is at least partially concealed by the display portion when not in use; and

wherein the display portion pivots relative to the body portion in a plane that is generally parallel with the alphanumeric keyboard.

2. The hand-held, electronic computing device according to claim 1, wherein the display portion completely conceals the alphanumeric keyboard.

3. The hand-held, electronic computing device according to claim 1, wherein the display portion pivots 180° relative to the body portion to define an open position.

4. The hand-held, electronic computing device according to claim 1, wherein the display portion pivots from a point located above the alphanumeric keyboard.

5. The hand-held, electronic computing device according to claim 1, wherein the display portion pivots from a point located below the alphanumeric keyboard.

6. The hand-held, electronic computing device according to claim 1, wherein the display is a high-resolution color display.

7. The hand-held, electronic computing device according to claim 1, further comprising:

at least one push pad disposed on the body portion to aid in pivoting the display portion relative to the body portion.

8. The hand-held, electronic computing device according to claim 1, further comprising:

14

at least one push pad disposed on the display portion to aid in pivoting the display portion relative to the body portion.

9. The hand-held, electronic computing device according to claim 1, further comprising:

at least one protective bumper disposed on the body portion.

10. The hand-held, electronic computing device according to claim 1, further comprising:

at least one protective bumper disposed on the display portion.

11. The hand-held, electronic computing device according to claim 1, wherein the body portion is formed from a partially transparent material.

12. The hand-held, electronic computing device according to claim 1, wherein the display portion is formed from a partially transparent material.

13. The hand-held, electronic computing device according to claim 1, wherein the body portion is of modular construction to allow the interchangeability of external components.

14. The hand-held, electronic computing device according to claim 1, wherein the display portion is of modular construction to allow the interchangeability of external components.

15. The hand-held, electronic computing device according to claim 1, further comprising:

at least one input/output component from the following group:

a. a light;

b. an LED;

c. a button;

d. a joystick;

e. a touch pad;

f. a jog wheel;

g. a scroll wheel;

h. a speaker;

i. a headphone jack;

j. a microphone;

k. an infrared port;

l. a DC adapter port;

m. an antenna;

n. an on/off switch;

o. an analog responder; and

p. a conductive power terminal.

16. The hand-held, electronic computing device according to claim 15, wherein the input/output components are carried by the body portion.

17. The hand-held, electronic computing device according to claim 15, wherein the input/output components are carried by the display portion.

18. The hand-held, electronic computing device according to claim 16, wherein the input/output components are carried by both the body portion and the display portion.

19. The hand-held, electronic computing device according to claim 15, wherein the input/output components are located to facilitate interaction with the device while the display portion is positioned to partially conceal the alphanumeric keyboard.

20. The hand-held, electronic computing device according to claim 15, wherein the LED is a full-spectrum color LED.

\* \* \* \* \*



Exhibit 2



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,210	08/28/2001	Sang Min Lee	DMJ002	4969
7590 05/19/2006				
Delphine M. James #170 2656 South Loop West Houston, TX 77054				
EXAMINER DINH, DUC Q				
ART UNIT 2629		PAPER NUMBER		

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action  
After the Filing of an Appeal Brief**

Application No.

09/940,210

Examiner

DUC Q. DINH

Applicant(s)

LEE, SANG MIN

Art Unit

2629

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The reply filed 05 March 2006 is acknowledged.

1. ☐ The reply filed on or after the date of filing of an appeal brief, but prior to a final decision by the Board of Patent Appeals and Interferences, will not be entered because:

a. ☐ The amendment is not limited to canceling claims (where the cancellation does not affect the scope of any other pending claims) or rewriting dependent claims into independent form (no limitation of a dependent claim can be excluded in rewriting that claim). See 37 CFR 41.33(b) and (c).

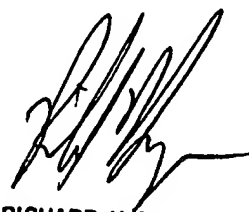
b. ☐ The affidavit or other evidence is not timely filed before the filing of an appeal brief. See 37 CFR 41.33(d)(2).

2. ☐ The reply is not entered because it was not filed within the two month time period set forth in 37 CFR 41.39(b), 41.50(a)(2), or 41.50(b) (whichever is appropriate). Extensions of time under 37 CFR 1.136(a) are not available.

Note: This paragraph is for a reply filed in response to one of the following: (a) an examiner's answer that includes a new ground of rejection (37 CFR 41.39(a)(2)); (b) a supplemental examiner's answer written in response to a remand by the Board of Patent Appeals and Interferences for further consideration of rejection (37 CFR 41.50(a)(2)); or (c) a Board of Patent Appeals and Interferences decision that includes a new ground of rejection (37 CFR 41.50(b)).

3. ☐ The reply is entered. An explanation of the status of the claims after entry is below or attached.

4. ☒ Other: the reply will not be entered because new subject matters are added in the specification (see amended specification) and the amended of claim 13 "the keypad faces the top surface of the electronic housing" raising new issue that would require new consideration.



**RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**



UNITED STATES PATENT AND TRADEMARK OFFICE

EXHIBIT 3

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,210	08/28/2001	Sang Min Lee	DMJ002	4969

7590 06/30/2005  
Delphine M. James  
#170  
2656 South Loop West  
Houston, TX 77054

EXAMINER

DINH, DUC Q

ART UNIT	PAPER NUMBER
----------	--------------

2674

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/940,210

Applicant(s)

LEE, SANG MIN

Examiner

DUC Q. DINH

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This is response to the Amendment filed on March 23, 2005.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 13-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amended claim 13 recites the limitation "in the closed state, the side edges of the support base are adapted to slide into the guide members such that the keypad faces the top surfaces of the electronic housing". Although the specification page 9-10 does mention the arrangement of the electronic device, there is no support in the specification for the quoted limitation above. The examiner examines the application based on best understood of the claimed language.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandenburg et al. (U. S. Patent No. 6,665,173), hereinafter Brandenburg.

In reference to claim 1, Brandenburg discloses in Fig. 6 a handheld computer comprising: keyboard portion 807 having support base and a thumbboard 805 (corresponding to the keyboard) defined by a top surface, a bottom surface, a rear edge, a front edge and a pair of side edges, the thumb board overlaying the top surface of the support base as claimed. An electronic housing 801 having the same structure with the keyboard portion as shown in Fig. 6A. Fig. 6B shows the coupling structure of the keyboard portion and the display portion in an open or closed position such that the bottom surface of the electronic housing is parallel to the bottom surface of the support base as claimed (col. 11, lines 35-53). The device specifically comprising (1) an alphanumeric data input device, such as a full QWERTY-type keyboard or thumb board; (2) a display device, such as an LCD, LED... display screen; (3) a processor; (4) a power source... and (6) a physical housing that contains these components (corresponding to the electronic housing) and that consists of at least two discrete portions that may translate, rotate and/or pivot relative to one another, one portion containing a display device and one portion containing a keyboard (col. 7 line 60 – col. 8 line 5). Fig. 7D show a keyboard having first and second section having plurality of key and being in the form of complementary symmetrical and vertically parallel with the top surface of the keyboard portion.

In addition, Brandenburg discloses that the system also has a plurality of raised grips 621 (corresponding to the hand support means) may be integrated into protective bumpers 619 to facilitate handling of and interaction with device 601. However, Blandenberg does not disclose the raised grips being attached to a side edge of the display portion of the device. Fig. 5 shows

and touch pad on the backside of the device. The touch pad is located such that it can be utilized by the user while the device is in either closed state or open state (col. 11, lines 16-34)

It would have been obvious for one of ordinary skill in the art at the time of the invention was made to provide the grips of the system to provide the user hand support while using the touchpad in the back of the display as shown in Fig. 5B or holding the device while typing on the keyboard as shown in Fig. 4.

In reference to claim 2, Fig. 7 shows the appropriate standard QWERTY keyboard format on the left and right hand as claimed.

In reference to claims 3, and 21, Fig. 6 A and 6C show the strips surrounding the display which carries the additional input device such as joystick for the system as claimed.

In reference to claims 4 and 22, see the rejection of claim 1 for the LCD display as claimed.

In reference to claims 19 and 20, refer to the rejection as applied to claim 1.

6. Claims 7-10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blandenbergh in view of Ni (U. S. Patent No. 6,297,752).

In reference to claim 7, refer to the rejection as applied to claim 1. However, Blandenbergh does not disclose, the bottom surface of the electronic housing being securely attached to the bottom surface of the keyboard in an operable position. Ni discloses a backside keyboard for a notebook having bottom surface of the electronic housing being securely attached to the bottom surface of the keyboard as claimed.

It would have been obvious for one of ordinary skill in the art at the time of the invention was made to learn the teaching of Ni, i.e., the bottom surface of the electronic housing being securely attached to the bottom surface of the keyboard in an operable position, so that the user has the same feel of location that occurs when the keyboard is on the top surface of the chassis thereby eliminating the strain caused by twisting the wrist to type in the state of the art (col. 2, lines 5-8).

In reference to claims 8-9, refer to the rejection as applied to claims 1-3.

In reference to claim 10, refer to the rejection as applied to claim 4.

In reference to claims 13 and 14, refer to the rejection of claim 1. In addition, Fig. 1-3 show an embodiment in which the keyboard portion and the display portion connected by sliding means which comprising bracket and guiding members for the system as claimed (see col. 9, lines 25-45). In addition, Ni shows the bottom surface of the keyboard and the bottom surface of the electronic housing are parallel to each other.

In reference to claim 15, refer to the rejection as applied to claim 3.

7. Claims 5, 11, 17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blandenberg and Ni in view of Makala et al. (U. S. Patent No. 6,047,196).

In reference to claims 5, 11, 17 and 23, Blandenberg discloses in Fig. 4, plurality of input devices is provided in the boundary strips around the display device. For examples one boundary may be indicated by a "-" sign and the opposing end boundary may be indicated by a "+" sign (col. 10, lines 26-60). However, Blandenberg does not disclose the plurality of additional



**IN THE CLAIMS**

1. (Previously Presented) A handheld computerized device comprising:

a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;

an electronic housing having a configuration defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the bottom surface of the electronic housing is parallel to the bottom surface of the support base;

a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;

a means for displaying data overlaying the top surface of the electronic housing; and

a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby data entered at the keypad is transmitted to the processor and displayed by the display means; and

a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;

the first and the second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;

2. (Previously Presented) The device recited in Claim 1, wherein the keypad further comprises:

~~a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;~~

~~the first and the second section lying co-planar vertically parallel along the top surface~~

**IN THE CLAIMS****1. (Previously Presented) A handheld computerized device comprising:**

a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;

an electronic housing having a configuration defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the bottom surface of the electronic housing is parallel to the bottom surface of the support base;

a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;

a means for displaying data overlaying the top surface of the electronic housing; and  
a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby data entered at the keypad is transmitted to the processor and displayed by the display means; and

a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;  
the first and the second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;

**2. (Previously Presented) The device recited in Claim 1, wherein the keypad further comprises:**

~~a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;~~  
~~the first and the second section lying co-planar vertically parallel along the top surface~~

- ~~of the support base of the keyboard portion;~~  
the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and  
the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand.
3. (original) The device recited in Claim 1, wherein the display means further comprises:  
a display area defined by a top edge, bottom edge, and a pair of side edges;  
a front panel surrounding the display area and being defined by a top strip, a bottom strip, and a pair of side strips; and  
each edge of the display area lying adjacent to and being securely attached to each corresponding strip of the display area.
4. (Previously Presented) The device recited in Claim 3 wherein the display area is a Liquid Crystals Crystal Display (LCD).
5. (original) The device recited in Claim 3, wherein the bottom strip and each side strip of the front panel further comprises:  
a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof; and  
a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.
6. (original) The device recited in Claim 1, further comprising:  
a pressure sensitive writing means for allowing data to be inputted via handwriting;  
and  
the pressure sensitive writing means overlapping the bottom edge of the display area.
7. (currently amended) A handheld computerized device comprising:  
a keyboard portion having a support base and a keypad, the support base including a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;  
an electronic housing having a configuration with a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the bottom surface of the electronic housing being securely attached to the bottom surface of the keyboard portion in an operable position;

- a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;
- a means for displaying data overlaying the top surface of the electronic housing; and
- a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby the data entered at the keypad is transmitted to the processor and displayed by the display means.
8. (original) The device recited in Claim 7, wherein the keypad further comprises:
- a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;
  - the first and second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;
  - the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and
  - the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand.
9. (original) The device recited in Claim 7, wherein the display means further comprises:
- a display area defined by a top edge, bottom edge, and a pair of side edges;
  - a front panel surrounding the display area and being defined by a top strip, a bottom strip, and a pair of side strips; and
  - each edge of the display area lying adjacent to and being securely attached to each corresponding strip of the display area.
10. (Previously Presented) The device recited in Claim 9 wherein the display area is a Liquid Crystals Crystal Display (LCD).
11. (original) The device recited in Claim 10, wherein the bottom strip and each side strip of the front panel further comprises:
- a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof; and
  - a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.

12. (original) The device recited in Claim 7, further comprising:  
a pressure sensitive writing means for allowing data to be inputted via handwriting;  
and  
the pressure sensitive writing means overlapping the bottom edge of the display area.
13. (currently amended) A handheld computerized device comprising:  
a sliding bracket having a pair of guide members;  
a keyboard portion having a support base and a keypad, the support base including a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the pair of side edges being adapted to slide into the pair of guide members in an operable state or in a closed state, the keypad overlaying the top surface of the support base;  
an electronic housing having a configuration with a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the pair of side edges being integrally coupled to the pair of guide members;  
a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;  
in the operable state, the side edges of the support base are adapted to slide into the guide members such that the bottom surface of the support base and the bottom surface of the electronic housing are parallel to each other;  
in the closed state, the side edges of the support base are adapted to slide into the guide members such that the keypad faces the top bottom surface of the electronic housing  
a means for displaying data overlaying the top surface of the electronic housing; and  
a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby the data entered at the keypad is transmitted to the processor and displayed by the display means.
14. (original) The device recited in Claim 13, wherein the keypad further comprises:  
a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;  
the first and second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;

- the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and
- the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand;
15. (original) The device recited in Claim 13, wherein the display means further comprises:  
a display area defined by a top edge, bottom edge, and a pair of side edges;  
a front panel surrounding the display area and being defined by a top strip, a bottom strip, and a pair of side strips; and  
each edge of the display area lying adjacent to and being securely attached to each corresponding strip of the display area.
16. (Previously Presented) The device recited in Claim 15 wherein the display area is a Liquid Crystals Crystal Display (LCD).
17. (original) The device recited in Claim 15, wherein the bottom strip and each side strip of the front panel further comprises:  
a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof; and  
a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.
18. (original) The device recited in Claim 13, further comprising:  
a pressure sensitive writing means for allowing data to be inputted via handwriting;  
and  
the pressure sensitive writing means overlapping the bottom edge of the display area.
19. (Previously Presented) A handheld computerized device comprising:  
a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;  
an electronic housing having a configuration defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the

bottom surface of the electronic housing is parallel to the bottom surface of the support base;

a pair of hand support means being securely attached at an ergonomic position along each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad.

20. (Previously Presented): The device recited in Claim 19, wherein the keypad further comprises:
- a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas,
  - the first and the second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;
  - the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and
  - the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand.
21. (Previously Presented) The device recited in Claim 19 wherein the display means further comprises:
- a display area defined by a top edge, bottom edge, and a pair of side edges;
  - a front panel surrounding the display area and being defined by a top strip, a bottom strip, securely attached to each corresponding strip of the display area.
22. (Previously Presented): The device recited in Claim 21 wherein the display area is a Liquid Crystal Display (LCD).
23. (Previously Presented): The device recited in Claim 21 wherein the bottom strip and each side strip of the front panel further comprises:
- a plurality of additional alphanumeric keys each adapted to generate a character signal upon depression thereof;
  - a means for electrically connecting the plurality of additional alphanumeric keys to the processor whereby each generated character signal is transmitted to the processor.
24. (Previously Presented) The device recited in Claim 19 further comprising :
- a pressure sensitive writing means for allowing data to be inputted via handwriting; and
  - the pressure sensitive writing means overlapping the bottom edge of the display area.

### ARGUMENTS

I am reiterating my original response per our telephone interview on December 27, 2004 as follows. In his response, Examiner never discussed FIG. 6C of Brandenburg. Per our telephone conversation, I pointed out the significance of FIG. 6C.

Regarding claim 1, we agreed that Applicant's claimed invention could be distinguished from Blandenberg. Applicant claims:

*a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;*

*an electronic housing having a configuration defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the bottom surface of the electronic housing is parallel to the bottom surface of the support base;*

Blandenberg states:

*As device 801 transitions to the open state, display portion 803 hingedly pivots relative to body portion 807 as indicated by arrow 809 in FIG. 6B. In the open state, display screen 815 is adjacent to and visible above thumbboard 805. Fig. 6a shows the closed state and Fig. 6B is still in the closed state to show the transition to FIG. 6C.*

As shown in FIG. 6C, the invention in the prior art keyboard is adjacent to the keyboard in an open state. The prior illustrates in FIG. 6A and 6B that bottom surface of the keyboard and display portion are parallel in a closed state. However, applicant claims the electronic housing



having the display and the keyboard portion are parallel in an open state. Thus, the Applicant's invention is distinguished from the prior art. As shown in FIG.'S, 6A, 6B, and 6C, the lower edge of the display is hingedly connected to the top edge of the keyboard housing. As shown in FIG. 1 in the specification, the two top edges are hingedly connected as claimed.

Regarding independent claim 7, claim 7 was amended to claim an alternative embodiment of claim 1, wherein the invention is affixed into an operable position with the bottom surface of electronic housing (620) and keyboard portion (610) in a parallel position. (See Page 8 line 8-16 and FIG. 6)

Regarding independent claim 13, claim 13 was amended to claim an alternative embodiment of claim 1, wherein the invention is slid into an operable position with the bottom surface of electronic housing (720) and keyboard portion (710) in a parallel position. (See Page10 lines 3-5 and FIG. 7C).

### 112 REJECTION OF CLAIM 13

The specifications do more than just mention operable versus closed state. The Page 9 lines 9-29 through page 10 lines 1-8 discloses the full process. There are some typographical errors between the FIG.'S 7A-7C and the specifications. The disclosure can be amended to matter that is inherently disclosed by the original application. (*See In re Smyte, 480 F.2d 1376, 178 USPQ 279 (C.C.P.A.)*) As a result, applicant has amended the specifications to be in line with the drawings which are part of the original disclosure. Examiner alleges that the specifications fail to convey to one skilled in the art. Applicant has amended FIG 7A and 7B with labels in line with FIG 7 and FIG. 7C. Applicant has provided FIG. 7C for clarification. The specification was amended as follows (Please note that examiner and applicant discuss

these changes in a telephone conversation; these amendments could have been taken care of before final office action response):

- label (746,747) was replaced with 736, 737 to show rib designations. 746, 747 was designated as ribs earlier in the application. This is an obvious error that can be amended.
- labels 741 and 742 was changed because their designation are reversed in the drawings. This is an obvious error that can be amended.
- More designations were added to FIG. 7A and 7B for clarification and to bring them in line with FIG. 7 and 7C. These designations are taken directly from the drawings 7 and 7C which were disclosed in the original disclosure.
- 765 was changed to 745. 745 is depicted as bottom surface of the electronic housing in the specifications and drawings. This is an obvious error for amendment.
- a description of 7A and 7B was added for clarification for examiner. 7B was changed to 7A. 7A is the closed state. This is an obvious error that can be amended in view of the drawings.
- Claim 13 was amended for examiner clarification. As shown in FIG. 7A, in the closed state the keypad (125) faces the bottom surface of the electronic housing which is also stated in the specifications on Page 10, *"After the user is finished using device (700), the keyboard portion (710) is slid into guide members (735, 737) with the keypad (725) facing the bottom surface ~~(765)~~ (745) of electronic housing (720)"* As shown in the operable state in FIG. 7B, keypad 125 does not face the bottom surface of the electronic housing. However,

Applicant can change wording to state a parallel configuration which is also depicted in FIG. 7A if required by the examiner.

Drawings are considered part of the specifications. (*See Was-Cath, Inc v. Mahurkar, 935 F2d 1555, 19 USPQ2d 1111, 1118 (Fed. Cir. 1991)*). Fig.'s 7A-7C illustrates the configuration of operable and closed state of this embodiment of the present invention. The language of claim 13 comes directly from the specifications in conjunction with the drawings. It is not clear what examiner means by the specification do not reasonably convey to one skilled in the art. Clarification is required because the drawings are clear. The description does not require literal support for the claimed invention. The disclosure should convey the concept that is claimed. (*See Ex Parte Parks 30 USPQ2d 1234, 1246-27 (B.P.A.I 1993)*) *Here, the do drawings provide the concept of the claimed invention.*

### 103 REJECTIONS

*Examiner cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. A factual inquiry whether to combine references must be thorough and searching. A showing of suggestion, teaching or motivation to combine the prior art references is an essential component of an obvious holding. The prior art must suggest a desirability to combine prior art references. (See 277 F3d 1338, 61 USPQ2d 1430 (Fed. Cir 2002)).*

*Here, the examiner tried to use Brandenburg to fit the claim limitations of Applicant. However, Brandenburg does not teach or suggest the configuration as claimed by the applicant. Brandenburg teaches a pivoting of a display into a normal configuration with the display adjacent to the keyboard in an open state. The device in Brandenburg is not hingedly*



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,210	08/28/2001	Sang Min Lee	DMJ002	4969

7590 09/02/2004  
Delphine M. James  
#170  
2656 South Loop West  
Houston, TX 77054

EXAMINER
----------

DINH, DUC Q

ART UNIT	PAPER NUMBER
----------	--------------

2674

DATE MAILED: 09/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/940,210

Applicant(s)

LEE, SANG MIN

Examiner

DUC Q DINH

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This is response to the Amendment filed on 8/20/03. The indicated allowabilities of claims 2, 8 and 14 are withdrawn in view of the newly discovered reference(s) to Brandenburg et al (U. S. Patent No. 6,665,173). Rejections based on the newly cited reference(s) follow.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7-10, 13-16, 19, 20-22 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandenburg et al. (U. S. Patent No. 6,665,173), hereinafter Brandenburg.

In reference to claim 1, Brandenburg discloses in Fig. 6 a handheld computer comprising: keyboard portion 807 having support base and a thumbboard 805 (corresponding to the keyboard) defined by a top surface, a bottom surface, a rear edge, a front edge and a pair of side edges, the thumb board overlaying the top surface of the support base as claimed. An electronic housing 801 having the same structure with the keyboard portion as shown in Fig. 6A. Fig. 6B shows the coupling structure of the keyboard portion and the display portion in an open position such that the bottom surface of the electronic housing is parallel to the bottom surface of the support base as claimed (col. 11, lines 35-53). The device specifically comprising (1) an alphanumeric data input device, such as a full QWERTY-type keyboard or thumbboard; (2) a display device, such as an LCD, LED, or LEP display screen; (3) a processor; (4) a power

source... and (6) a physical housing that contains these components and that consists of at least two discrete portions that may translate, rotate and/or pivot relative to one another, one portion containing a display device and one portion containing a keyboard (col. 7 line 60 – col. 8 line 5).

Fig. 7D show a keyboard having first and second section having plurality of key and being in the form of complementary symmetrical and vertically parallel with the top surface of the keyboard portion.

In addition, Brandenburg discloses that the system also has a plurality of raised grips 621 (corresponding to the hand support means) may be integrated into protective bumpers 619 to facilitate handling of and interaction with device 601. However, Blandenberg does not disclose the raised grips being attached to an side edge of the display portion of the device. Fig. 5 shows and touch pad on the back side of the device. The touch pad is located such that it can be utilize by the user while the device in ether closed state or open state (col. 11, lines 16-34)

It would have been obvious for one of ordinary skill in the art at the time of the invention was made to provide the grips of the system to provide the user hand support while using the touchpad in the back of the display as shown in Fig. 5B or holding the device while typing on the keyboard as shown in Fig. 4.

In reference to claim 2, Fig. 7 shows the appropriate standard QWERTY keyboard format on the left and right hand as claimed.

In reference to claims 3, 9, 15, 21, Fig. 6 A and 6C show the strips surrounding the display which carries the additional input device such as joystick for the system as claimed.

In reference to claims 13 and 14, refer to the rejection of claim 1. In addition, Fig. 1-3 show an embodiment in which the keyboard potion and the display portion connected by sliding

means which comprising bracket and guiding members for the system as claimed (see col. 9, lines 25-45).

In reference to claims 4-10, 16 and 22, see the rejection of claim 1 for the LCD display as claimed.

In reference to claims 7-8 and 19 and 20, refer to the rejection as applied to claim 1.

4. Claims 5, 11, 17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blandenburg in view of Makala et al. (U. S. Patent No. 6,047,196).

In reference to claims 5, 11, 17 and 23, Blandenburg discloses in Fig. 4, plurality of input devices is provided in the boundary strips around the display device. For examples one boundary may be indicated by a "-" sign and the opposing end boundary may be indicated by a "+" sign (col. 10, lines 26-60). However, Blandenburg does not disclose the plurality of additional alphanumeric key for the system. Makala discloses a portable device having the additional alphanumeric keys in the display portion in Fig. 1.

It would have been obvious for one of ordinary skill in the art at the time of the invention was made to learn the teaching of Makala, i.e.: providing additional alphanumeric key, in the boundary strips of the display device of Blandenburg so that it can be used in the open position or in the closed position.

5. Claims 6, 12, 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blandenburg in view of Genest et al. (U. S. Patent No. 6,480,377) hereinafter Genest.

In reference to claim 6, 12, 18, and 24, Blandenburg fails to disclose a pressure sensitive means for allowing data to be input via handwriting and the pressure sensitive means overlapping the



bottom of the display area. Genest discloses handheld computer having a display screen 32 is and LCD screen of the pressure sensitive type.

It would have been obvious for one of ordinary skill in the art at the time of the invention was made to provide the pressure sensitive of Greenest in the device of Blandenburg because that would enable the user additional input data or commands into the system.

### *Response to Arguments*

6. Applicant's arguments with respect to previous Office Action have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **DUC Q DINH** whose telephone number is **(703) 306-5412**. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **RICHARD A HJERPE** can be reached on **(703) 305-4709**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**Or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Application/Control Number: 09/940,210

Art Unit: 2674

Page 6

Hand-delivery response should be brought to: Crystal Park II, 2121 Crystal Drive,  
Arlington, Va Sixth Floor (Receptionist)

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Technology Center 2600 Customer Service Office whose telephone  
number is (703) 306-0377.

DUC Q DINH

Examiner

Art Unit 2674

DQD

August 27, 2004

  
REGINA LIANG  
PRIMARY EXAMINER

# **Notice of References Cited**

Application/Control No.

09/940,210

Examiner

DUC Q DINH

Applicant(s)/Patent Under

Reexamination  
LEE, SANG MIN

Art Unit

2674

Page 1 of 1

## **U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,665,173	12-2003	Brandenberg et al.	361/680
	B	US-6,047,196	04-2000	Makela et al.	455/556.1
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

## **FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

## **NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



US006178085B1

(12) **United States Patent**  
**Leung**

(10) Patent No.: **US 6,178,085 B1**  
(45) Date of Patent: **Jan. 23, 2001**

(54) **CALCULATOR LID MECHANISM**

(75) Inventor: **Chan Sik Leung, Kowloon (HK)**

(73) Assignee: **CCL Products Enterprises, Inc.,  
Baldwin, NY (US)**

(\*) Notice: Under 35 U.S.C. 154(b), the term of this patent shall be extended for 0 days.

(21) Appl. No.: **09/157,187**

(22) Filed: **Sep. 18, 1998**

**Related U.S. Application Data**

(60) Provisional application No. 60/083,249, filed on Apr. 27, 1998

(51) Int. Cl.<sup>7</sup> ..... **H05K 5/00; H05K 5/03;  
G06C 7/02**

(52) U.S. Cl. .... **361/683; 361/681; 361/680;  
235/1 D; 235/145 R; 16/277**

(58) Field of Search ..... **361/679, 683;  
364/708.1; 16/287, 298, 302, 319, 328,  
361, 366, 277; 235/145 R, 1 D; 368/276,  
286; 248/118, 118.1, 118.3, 118.5; D7/2,  
6, 7, 11; D14/100, 105**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

D. 249,822 • 10/1978 Ohie et al. .... D64/11 B  
D. 426,849 • 6/2000 Lee ..... D18/7  
3,881,807 • 5/1975 Hosokawa et al. .... 350/160 LC  
3,952,365 • 4/1976 Grisebach ..... 16/52  
4,259,568 • 3/1981 Dynesen .  
4,290,168 • 9/1981 Binge ..... 16/175  
4,390,289 • 6/1983 Houlihan ..... 368/286  
4,450,454 • 5/1984 Koto ..... 346/140 R  
4,703,160 • 10/1987 Narishima et al. .  
4,820,908 • 4/1989 Wei .  
5,128,829 • 7/1992 Loew ..... 361/380  
5,239,731 • 8/1993 Lu ..... 16/340  
5,303,291 • 4/1994 Takagi et al. .... 379/433  
5,335,273 • 8/1994 Takagi et al. .... 379/433  
5,425,157 • 6/1995 Chang ..... 16/381  
5,530,234 • 6/1996 Loh et al. .

5,555,157 • 9/1996 Mollner et al. .... 361/683  
5,568,358 • 10/1996 Nelson et al. .  
5,607,054 • 3/1997 Hollingsworth .  
5,732,135 • 3/1998 Weadon et al. .... 379/433  
5,737,163 • 4/1998 Kobayashi et al. .... 361/683  
5,828,587 • 10/1998 Bedol ..... 364/705.02  
5,881,150 • 3/1999 Persson ..... 379/433  
6,085,384 • 7/2000 Bivens ..... 16/54

**FOREIGN PATENT DOCUMENTS**

2211323 • 6/1989 (GB) ..... G06F/01/00  
57-103872 • 6/1982 (JP) ..... 400/88  
57-143626 • 9/1982 (JP) ..... 708/100  
63-231563 • 9/1988 (JP) ..... G06F/15/02  
64-18864 • 1/1989 (JP) ..... G06F/15/02  
3-162025 • 7/1991 (JP) ..... 455/575  
4-117848 • 4/1992 (JP) ..... H04M/01/02

\* cited by examiner

Primary Examiner—**Leo P. Picard**

Assistant Examiner—**Anatoly Vortman**

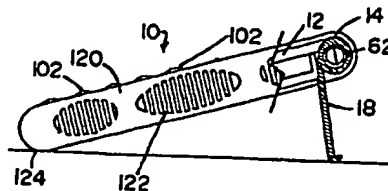
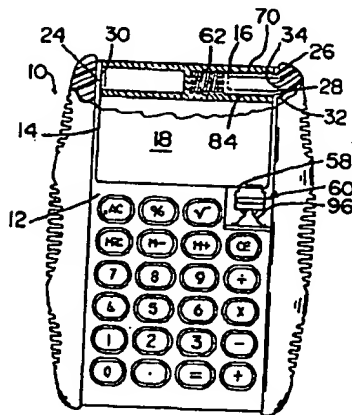
(74) Attorney, Agent, or Firm—**Scully, Scott, Murphy & Presser**

(57)

**ABSTRACT**

A calculator which generally possesses a flat, compact and portable housing construction, and which includes a calculator lid mechanism which pivots a flat cover of the calculator in a predetermined controlled manner between a first position causing the flat cover to form a lid which overlies a calculator display, and a second operational position in which the cover is pivoted towards the rear of the calculator so as to form a stand for tilting the calculator into an upwardly inclined ergonomic position relative to a horizontal support surface during intended use thereof. Upon the actuation of a switch, a release mechanism enables the lid to be pivoted rearwardly in a controlled damped manner about a hinge connection, which articulates the lid to the calculator housing, under the urging of a torsion spring and damping drum arrangement constituting the lid mechanism located within a tubular bore within the hinge portion of the lid structure into an essentially perpendicular orientation relative to the rear surface of the calculator housing so as to form the stand for tiltingly support the calculator when positioned on a horizontal surface.

**9 Claims, 3 Drawing Sheets**



Hand support

03-24-05

Exhibits *EPW*  
2674



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: SANG MIN LEE

Serial No.: 09/940,210

Group Art Unit: 2674

Title: COMPACT KEYBOARD FOR HANDHELD COMPUTER

Examiner: DUC Q DINH

AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Honorable Sir:

This amendment is filed in response to the office communication dated 3/3/2005. I have added claims 19-24. I have enclosed the fee for \$5.00.

IN THE CLAIMS

1. (Previously Presented) A handheld computerized device comprising:

a keyboard portion having a support base and a keypad, the support base defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the keypad overlaying the top surface of the support base;

an electronic housing having a configuration defined by a top surface, a bottom surface, a rear edge, a front edge, and a pair of side edges, the front edge of the electronic housing being hingedly coupled to the front edge of the support base such that the electronic housing can pivot from a closed position into an open position wherein the bottom surface of the electronic housing is parallel to the bottom surface of the support base;

a pair of hand support means being securely attached at an ergonomic position along

Adjustment date: 03/25/2005 SSESHE1  
01/07/2005 AWONDAF1 00000002 09940210  
01 FC:1999 -55.00 OP

03/25/2005 SSESHE1 00000010 09940210 60.00 OP  
01 FC:2251

each side edge of the electronic housing, whereby a user's left hand or right hand or both hands are supported while the user is typing on the keypad;  
a means for displaying data overlaying the top surface of the electronic housing; and  
a processor situated within the electronic housing, the processor electrically connected to the display means and the keyboard portion whereby data entered at the keypad is transmitted to the processor and displayed by the display means; and  
a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;  
the first and the second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;

2. (Previously Presented) The device recited in Claim 1, wherein the keypad further comprises:

~~a first and a second section having a plurality of alphanumeric keys each adapted to generate a character signal upon depression thereof, each section being in the form of complementary symmetrical or asymmetrical parabolas;~~  
~~the first and the second section lying co-planar vertically parallel along the top surface of the support base of the keyboard portion;~~  
the first section of the keypad being arranged in the standard QWERTY keyboard format for the left hand; and  
the second section of the keypad being arranged in the standard QWERTY keyboard format for the right hand.

3. (original) The device recited in Claim 1, wherein the display means further comprises:  
a display area defined by a top edge, bottom edge, and a pair of side edges;  
a front panel surrounding the display area and being defined by a top strip, a bottom strip, and a pair of side strips; and  
each edge of the display area lying adjacent to and being securely attached to each corresponding strip of the display area.
4. (Previously Presented) The device recited in Claim 3 wherein the display area is a Liquid Crystals Crystal Display (LCD).